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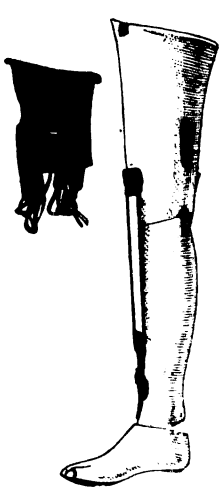

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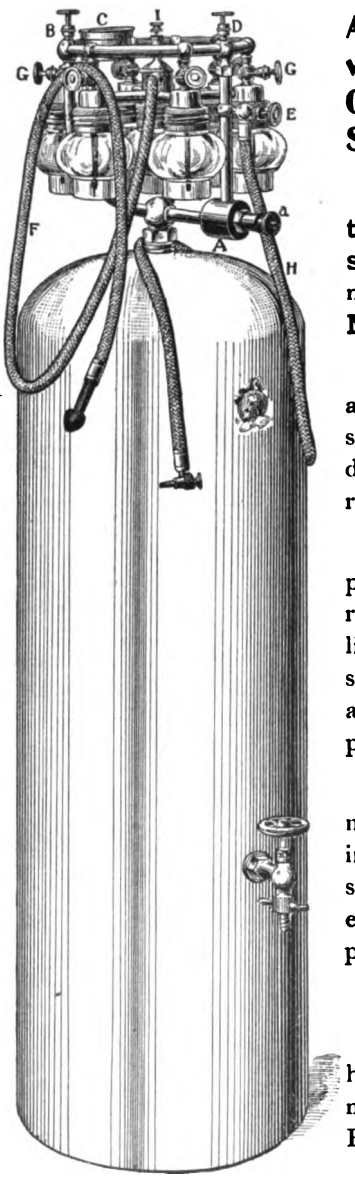

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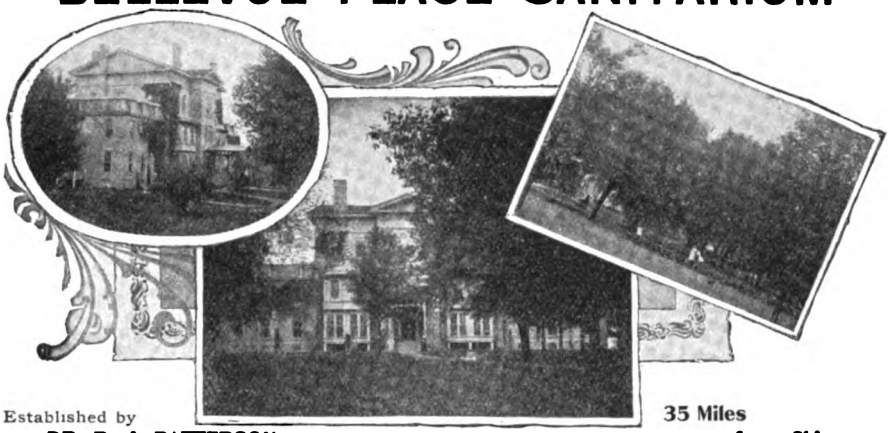

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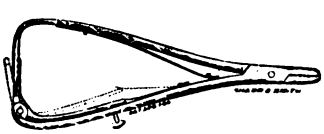

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PNEUMOCOCCUS INFECTION.*

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Bacteriology has done much to improve and make more definite our knowledge of infection and of the infectious diseases. The present conception of pneumonia has been formed definitely and clearly by clinical and laboratory study of the diplococcus pneumoniæ. I think no recognized pathologist or clinician denies that the specific cause of the so-called lobar, croupous, or fibrinous pneumonia is Fraenkel's diplococcus; not only is it the cause, but the sole specific cause, in spite of the fact that in perhaps 10 per cent of the cases of pneumonia it may not be discovered in the sputa, blood, pleural and lung exudate either during life or post-mortem. That the pus cocci, the influenza bacillus, the colon bacillus, the typhoid bacillus, Friedlander's diplococcus, and other organisms may also be found individually or mixed in the lung and in the sputa is not proof that any one of them is a specific cause of croupous pneumonia. That any one of the group named may be present and cause a pneumonitis is not proof that the infectious disease classed as pneumonia is of the same source. On the other hand, Fraenkel's diplococcus is found during the course of the disease and post-mortem, so frequently in the lung exudate and the sputa, sometimes in the blood and also in local areas when infected, like the joints, the pericardium, the cerebro-spinal spaces of brain and cord, the pharynx, the middle ear, the plural cavity, that we must accept it as the specific causative factor in pneumonia.

*Read before the Kalamazoo (Mich.) Academy of Medicine, Jan. 9, 1900.

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Pneumonia is an acute infectious disease characterized usually by a local inflammation of the lung and an associated specific toxæmia. The local process occurs so frequently in the lung that we still use the term pneumonia to express the nature of the disease. The older, now practically obsolete, term lung fever expresses the pathological process much more truly. It is a recognized fact, supported by many observations, that pneumonia may occur without a pneumonitis. This is better expressed as a pneumococcus infection without lung involvement. The infection may occur as a septicæmia or as a pyæmia alone or as a septico-pyæmia. That the specific cause may infect, with or without lung involvement, the pleura, the pericardium, the meninges of the brain and cord, the joints, the middle ear, etc., etc., has been proved by many clinical and post-mortem observations. Toxæmia occurs in these cases, producing fever with disturbance of the cardio-vascular system, of the secretions and excretions, and of the nervous and digestive apparatus of the body as in ordinary pneumococcus lung involvement. This proves that the disease is an infection with certain local manifestations, just as typhoid fever is an infection with local lesions, usually of the bowels and mesenteric lymph glands, associated with a peculiar toxæmia. Typhoid fever is furthermore like pneumonia in the fact that the disease may exist without bowel involvement and may also have local typhoid lesions in other organs than the bowels, or even as a typhoid septicæmia with or without bowel lesions.

In a like manner, pneumonia may be compared with other infective fevers. Of the other bacteria found in pneumonia, it may be said that they are only associated with the true pneumococcus in pure lung fever. When so associated they may modify the morbid process of the disease in the lung or in any other localized spot of infection and thus alter the clinical aspect of the disease. It has been proved that in a mixed infection of pathogenic bacteria or of pathogenic and non-pathogenic germs, one bacterium may modify the growth or toxic properties or toxic producing powers of the other, thus diminishing, increasing, or modifying the virulence of the specific organism of the disease in question and thus modify the clinical course of a given disease. The diplococcus of Fraenkel, known also as the diplococcus lanceolatus, is so well known and so fully described in the books that no description of it is necessary here.

It has a short life in culture media and must be reinoculated in solid culture media every four to ten days and in liquid media at slightly longer periods to preserve it. It is fair to presume that its life-history in

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the laboratory corresponds to the natural duration of the disease. It is very significant that the average time of crisis in the disease is about the seventh day. The germ diminishes in virulence by artificial cultivation, but regains the virulence by being passed through susceptible animals.

Eyre and Washburn (the *Lancet,* London, Jan. 7, 1899, p. 19) have shown that there are a large number of types of the pneumococcus which differ from one another in virulence and in biological character.

The parasitic type, the classical pneumococcus, is the most virulent and the least hardy. The saprophytic type, such as is found frequently in the fauces, in dust, etc., is the least virulent, is resistant and of long life. By repeated passages through animals, the saprophyte may be made virulent and the several types of pneumococci then appear identical. When a pure culture of the pneumococcus is injected into the lung substance it invariably causes croupous pneumonia. If injected into a large serous sac it will cause pneumococcus septicæmia.

Lung fever is undeniably an infectious disease due to the pneumococcus pneumoniæ. Lung inflammation, pneumonitis, on the other hand, may be caused by many varieties of germs. Thus we may have a pneumococcus pneumonitis, designated pneumonia and better called lung fever for the same reasons that we call typhoid fever, enteric fever.

We may have *streptococcus* pneumonitis, *staphylococcus* pneumonitis, *colon bacillus* pneumonitis, *typhoid bacillus* pneumonitis and other bacteriologic forms. Septic pneumonitis is not rare and, in the infectious fevers complicated with pneumonia, the processes may be pathologically an infection with any one or more (*mixed infection*) of the above-named bacteria.

The local signs of the different forms of pneumonitis may be so much alike and the clinical phenomena of the first days in the course of the disease so similar that differentiation may be impossible. The histological and bacteriological examination of the blood and pleural exudate may yield information which will enable one to make a diagnosis.

I think the statement of the existence of different pathological forms of pneumonitis and the similarity of signs and clinical course is just as true as the fact that cerebro-spinal meningitis exists as several different types bacteriologically, with many common signs and symptoms. Lumbar puncture with microscopical and cultural examinations has enabled us to prove this fact in meningitis.

The recognition of the *type* of pneumonia is important in prognosis and in therapy.

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Clinically and by physical signs it is difficult and well nigh impossible to distinguish the consolidation of the lung due to an inflammatory exudate of any of the bacteriologic causes of a pneumonitis. The exudate may not be the same in all respects, histologically, chemically or bacteriologically, and still the gross anatomical lesion is so nearly alike that the same or similar physical signs appear. The mechanical effects due to a narrowed respiratory surface and the cardio-vascular disturbance will be similar or alike and differ in degree only. The toxæmia will, however, be different, and now that we recognize the different types of pneumonitis, a closer study of the blood and of the clinical course of each will some day give us more definite information than we now possess.

It is not my purpose to take up ordinary pneumococcus infection with lung involvement. I have nothing to add to what is well recognized and written about ordinary frank pneumonia as it is manifested during the different periods of life; nor of the complications, the diagnosis, prognosis, mortality or treatment. I desire only to present some cases which are examples of the general infectiousness of the disease; which prove that lung involvement is not always present and that pneumococcus infection of other portions of the body or of the blood may occur with or without lung involvement.

Pneumococcus infection may occur locally as in the lung, throat, middle ear, etc. As a general infection it may occur as a septicæmia or as a pyæmia or as a septico-pyæmia. We cannot say how often such septicæmia occurs because we have not the data from which to judge. A bacteriological examination of the blood is necessary for its recognition. The bacteria may be so often overlooked because of the great dilution in the blood or because of faulty technique, that the bacteria are probably much more often present than we have believed. In all fatal cases pneumococci probably appear in the blood for twenty-four or more hours preceding death. Sello found pneumococci in the blood of twelve of forty-eight cases, and ten of the twelve cases died.

Pneumococcus septicæmia with little or no lung involvement is probably more frequent in young children than in older individuals. When the systemic infection occurs, grave symptoms appear, which suggest general infection. Repeated chills, or in children convulsions, high temperature, cerebral and gastro-intestinal disturbance of a severe type are common phenomena. With lung involvement the systemic infection may appear before or after the local evidence of the disease is manifested.

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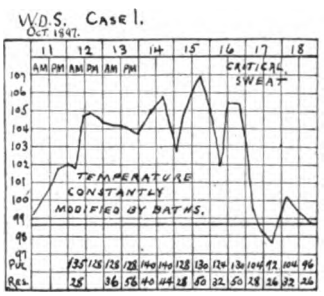
Case 1. The following case illustrates a septicæmia with practically no lung involvement. N. D. S., æt. 7, seen with Doctors Favill, Christopher and Storer; an only son; had pneumonia in 1892, when two years old; was seized with chill on October 11, 1897. Nausea and vomiting occurred early, and the temperature rose rapidly, reaching 105° F. thirty hours after the chill. The pulse was 135 and the respirations were 28 at the same date. Delirium of a maniacal kind occurred early. There were no local signs of disease anywhere and no cough. Blood examination was negative. The temperature continued high (see chart) with a rapid heart action and respirations ranging from 30 to 50 during the seven days of illness. On the third day a small area of apparent dullness was found under the angle of the right scapula, with broncho-vesicular breathing and without râles. This was the only local involvement discovered and the process did not increase or spread. The chlorides were much diminished in the urine and a trace of albumin appeared with a few hyaline casts. A crisis with sweat occurred on the seventh day and was followed by an uninterrupted recovery. There could be no doubt of the diagnosis in this case of pneumococcus septicæmia, although the proper blood examinations were not made.



A septicæmia may become a septico-pyæmia or with a septicæmia the pneumococcus may localize itself in one focus—a joint—the pericardium, the meninges, the middle ear, etc.

Localized Infection. The importance of a localized pneumococcus infection is determined by the importance of the organ infected and by the path along which the bacteria spread. When the pericardium or the meninges are involved in the local process, the local infection is of far greater significance in relation to life than when the pleura or a joint alone is involved. The bacteria may extend along the blood or lymph channels or by direct extension through the tissues or along a duct as the Eustachian tube or Steno's duct. The following is a history of a case of localized infection of the lung and middle ear with pneumococcus septicæmia.

Case 2. Mrs. N. S., a widow, aged twenty-five years, entered December 31, 1898. She had had the measles and whooping-cough as a child, pneumonia one and two years ago, and had been feeling poorly for a week, with a "cold in the head" and loose cough. Two days before entering she had a chill lasting fifteen or twenty minutes, followed by fever. Immediately after the chill, sharp pain was felt in the right side, in the axillary region, aggravated by coughing or deep breathing; a hard, painful cough, later expectoration of white tenacious material.

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Examination showed her to be poorly nourished, slender and small; mind clear; skin moist; eyes showing some exophthalmos, pupils reacting to light and accommodation; lips dry; cyanosis and icterus present. Her chest was small and narrow, respirations rapid and jerky. There was friction fremitus in the right axilla, dullness over the right lower lobe posteriorly, and over the same area crepitant râles, friction and tubular breathing. Over the left lower lobe posteriorly there were fine mucous râles. The heart was negative, pulse rapid, full and of medium tension. The liver extended two finger-lengths below the costal arch and was tender. The spleen was not palpable; urine 1020, acid, clear yellow, containing no albumin nor formed elements. Temperature, pulse and respiration were as in chart.

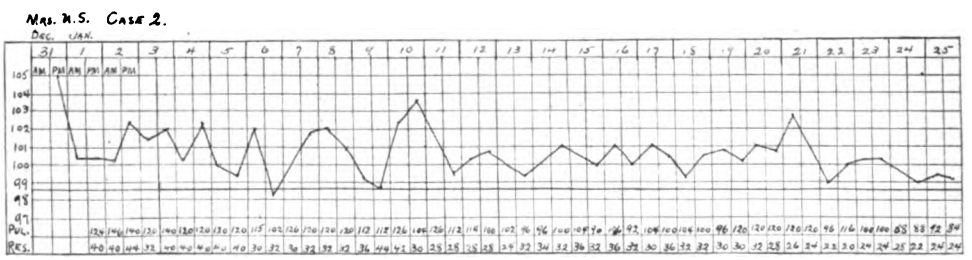
Diagnosis—Pneumonia of the right lower lobe.

January 9th, a spot of consolidation was noted in the left lower lobe, and in the left upper lobe, with a temperature of 98.7; pulse 112, and respirations 44. Pneumococci appeared in the sputum.

January 13th, an area of consolidation appeared in the right upper lobe.

January 17th, cultures from the blood obtained by venous puncture showed pneumococci.

January 18th, there was purulent discharge from the left ear containing pneumococci. There followed a gradual recovery, patient leaving the hospital one month after entrance.



We have here what at first seemed to be an ordinary pneumococcus pneumonia. Its course was prolonged by later transient localization in other lobes than the one primarily involved. Without there being any special reason to suspect the presence of the pneumococci in the blood, they were found easily and in large numbers, being present also in blood smears. Whether or not the complicating otitis media was due to localization from the blood or extension through the throat could not be determined, but was probably the latter. Pneumococcus septicopyæmia is well illustrated in the following case:

Case 3. N. R., male, twenty-three years of age, a laborer, entered Cook County Hospital on the 25th of October, 1899. He had pneumonia several years ago and suffered from measles and rheumatism some years ago, the exact date of which he has forgotten. The father, brothers and sisters are living and well. The mother is dead of unknown cause. He has used beer very moderately and has also used tobacco.

His present illness began one week ago with a severe chill followed by fever and sweat. There was pain in the left chest, aggravated by coughing, by deep breathing and by change of position. He coughed some. The expectoration at first scant and frothy, became more profuse, thick and tenacious, of a yellowish

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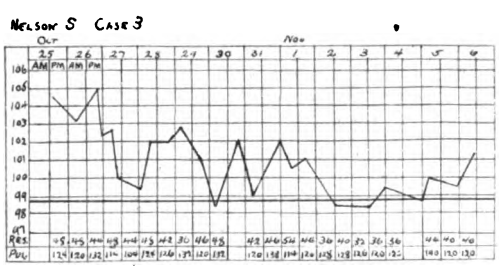
color, later became of a darker tint, and last of all rusty. He had a good deal of muscular soreness and some headache.

Examination shows a man of short stature, well-nourished, mind clear, expression anxious. He has dyspnœa. His eyes, ears, nose and throat are negative. The tongue large, flabby and heavily coated with whitish fur, the breath foul. The superficial veins of the neck were somewhat distended. The chest was large and roomy. The respiratory excursion almost *nil* on account of pain experienced on deep inspiration. The resonance was exaggerated over the right chest, but impaired and dull below on his left, with almost complete dullness above and posteriorly as far down as the angle of the scapula, below which the resonance was impaired only. On auscultation the left chest was marked above by exaggerated vesicular breathing and a few moist râles both fine and coarse. Below numerous râles were present with increased fine râles and breath sounds, but no bronchial breathing. In the axillary region dullness gradually disappeared and became relative. Anteriorly above there was some resonance, but much less than on the right side. Moist râles were numerous but no bronchial breathing. Vocal fremitus was increased both above and below on the left side. The breathing was vesicular over the whole right lung. There was apparently no increase of the cardiac dullness. The sounds clear and distinct with an accentuated second pulmonic. The pulse was rapid, full and low tension. Over the abdomen there was some distension, and tenderness over the hepatic and epigastric regions. The liver was apparently not enlarged. The spleen was palpable and extended three-fourths of an inch below the costal arch. The skin was moist and hot without eruption. The bones and joints were negative. The knee-jerk was present. The urine, a single specimen, gave a specific gravity of 1016, dark color, acid reaction, a trace of albumin, no sugar, a few blood corpuscles and a few blood and granular casts.

During the next six days the patient's physical condition remained about the same, with the exception that the left upper lung became dull in front. He became very delirious so that he had to be bound to the bed. On the fourth day in the hospital, while unbound and unwatched, he jumped from the second story window, a distance of about twelve or fifteen feet, to the ground and injured the right shoulder and the left knee, but apparently produced no fractures of bones. From the time of admission to the 1st of November, the patient's temperature ranged from 104½° on admission to 105° upon the second day, and thereafter fell to running from 99½° to 102°, and reached normal without crisis on ninth day of his coming to the hospital. His respirations ranged from 40 to 54 during that time and his pulse from 120 to 138. (See temperature chart.) On the seventh



day in the hospital there was dullness over the entire left chest behind with bronchial breathing, rhonchi and crepitant râles, in front the breathing was broncho-vesicular and there was relative dullness. The heart tones were less strong than upon admission, but the second pulmonic was still accentuated and the pulse regular. On the ninth day the patient was mentally clear. The physical findings over the left chest were about the same as before. The heart was somewhat irregular, but the pulmonic second tone was still accentuated and good.

On the tenth day there were more râles to be heard over the left chest.

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The patient's pulse at this time (4 p. m.) was 126, his temperature 99.4°, his respirations 32. Dullness was somewhat less over the left lower chest, but still marked over the upper left chest behind. There were many large moist râles over the whole left lung. The breathing was harsh, but less bronchial. The heart's action regular, the pulmonic second tone less accentuated. The patient complained of great pain in the right shoulder, which was negative upon examination. The left knee was swollen and very tender to pressure and there was fluctuation over the joint surface. The metatarso-phalangeal joint of the left great toe was swollen and tender. The patient's neck was slightly stiff and the head held somewhat backward. The mind was clear and there was no headache. On the twelfth day at 3 a. m., the pulse was 120, the temperature 99°, and the respirations 40. The patient's mind was not clear, the head was retracted, the muscles of the neck hard and contracted, the reflexes of the body were all increased, the pupils were equal and somewhat contracted, but reacted to light. Kernig's sign was present. Lumbar puncture was made and one dram of fluid was collected, which was clear and a smear showed no pus cells and no bacteria, and cultures made therefrom were negative.

The patient remained practically unchanged during the day and following night. He vomited curds of milk and clear fluid and slept only about two hours. At 8 a. m. on the thirteenth day the pulse was 126, temperature 101.4°, respirations 40. The patient was in a half comatose state and could not be aroused to answer questions. The pupils were moderately contracted, equal, and responded to light. There was no strabismus. The neck was rigid. Motion apparently painful. The right shoulder was swollen and tender to pressure. The lungs gave practically the same findings as last quoted, with the exception that large râles were heard over both sides. The left knee was swollen and tender and there was some tenderness in the right lower and left upper extremities.

The left knee, the right shoulder and the spinal canal were punctured at one and the same time, all yielding turbid, purulent-looking fluid, which coagulated spontaneously. The fluid from all points of aspiration contained encapsulated diplococci which stained by Gram's method. Cultures made revealed the characteristic diplococci of pneumonia. The patient died at 4:10 p. m. on the thirteenth day of his stay in the hospital. An autopsy was not allowed.

This patient presents in his early history an ordinary case of pneumonia with lung involvement. During the height of his disease, while delirious, he received injuries of the shoulder and knee, which with the spinal and probably also the cerebral meningeal surfaces, became infected with the pneumococci after the lung lesion had run its course. The following case presents a remarkable condition of pneumococcus septicæmia with but little constitutional involvement and with repeated attacks of localized lung infection:

Case 4. Grace K., single, entered December 4, 1898. Had scarlet fever as a child; had cholera ten years ago, lasting for some months. Since then she has had trouble with her heart. She had been fairly well, until five weeks previous to entrance, when illness began with a dull pain in the fingers, thighs, and muscles generally, but not involving the joints. For a few nights after the onset she had night-sweats, and when these stopped the cough began and continued with yellow mucopurulent expectorate. Has had dyspnœa on lying down and on exertion; no swelling of the feet; appetite fair, but had distress after eating.

Examination showed a small, poorly nourished woman, about twenty-five years of age. She had slight cyanosis on lying down; no edema. Examination of the lungs showed only generally diffused moist râles. Apex-beat of the heart was external to the nipple line in the fifth interspace, first tone at apex easily palpable; presystolic thrill over the apex; second pulmonary tone palpable.

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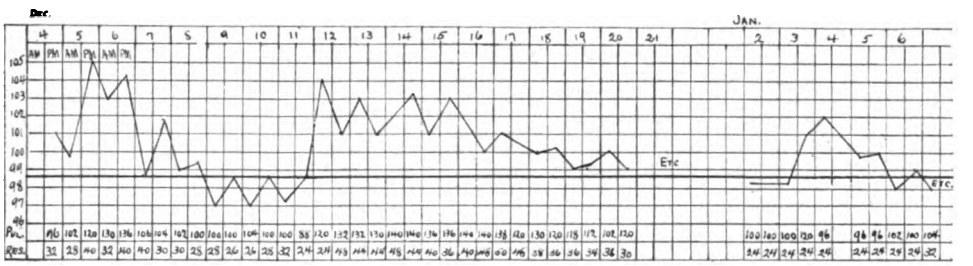
There was absolute cardiac dullness to the third rib above, to and a little beyond the right border of the sternum to the apex-beat, with systolic and presystolic murmurs at apex. The first tone at the apex and the second pulmonary tone were accentuated; aortic tones pure. The liver was slightly enlarged; spleen not palpable. Urine, 1030; containing no albumin nor casts. Temperature was 101°; pulse 96; respirations 32. Course of the temperature and so forth is shown in chart.



Diagnosis—Acute exacerbation of an old mitral endocarditis.

December 7th, diffuse moist and crepitant râles over both lungs; no bronchial breathing; cough, but no expectorate.

December 12th, after a normal temperature for three days, the temperature rose suddenly to 104°; the pulse 120; respirations 24. Crepitant râles appeared over the right middle and lower lobe without dullness or bronchial breathing. There was bloody sputum containing pneumococci.

December 15th, dullness of the right middle and part of the left lower lobe was noted, with bronchial breathing and crepitant râles; cardiac dullness increased beyond the size at entrance, with pericardial friction. Blood shows 24,541 leucocytes. Smears and cultures show pneumococci.

December 17th, blood smears show pneumococci. The condition gradually improved, the temperature fell by lysis, but the pulse and respiration kept up. The lungs gradually cleared, heart condition did not change. Pneumococci found at intervals until December 31st, when the blood examination showed 2,454,000 reds, 9,023 whites; hemoglobin, 50 per cent, no bacteria.

January 2d, 1899, the patient has been up and about for three days and felt well, but on this morning spit up a small amount of bright red blood. Was sent to bed and examination showed a perfectly developed consolidation of the lower left lobe. Temperature 99°. The two following days she had a temperature ranging from 101° to 102°, with pulse ranging from 96 to 120, and respirations of 24. The next day the temperature fell, but the signs of consolidation continued for several days, and gradually disappeared. During this time the patient was entirely free from subjective symptoms, and objected strongly to being confined to bed. The blood at this time was free from pneumococci. The patient gradually regained her health, and left the hospital seven weeks after entrance. The diagnosis ran an acute exacerbation of the chronic endocarditis, causing mitral stenosis and insufficiency, lobar pneumonia, pericarditis, and pneumococcus septicæmia. (See chart.)

Case 5. (*Pneumococcus meningitis with pneumonia.*) J. M., male, a patient of Dr. Billings, entered March 2, 1899. He was comatose and unable to give any account of himself.

Examination showed right eye closed, left held open. Heart negative. Lungs showed dullness, with high-pitched breathing over the left lower lobe with friction. Abdomen: Liver was palpable, spleen not. Pulse 80, temperature 102° in the axilla, respirations 32. All rose gradually till death on the sixth day.

Lumbar puncture yielded a diplococcus which by stain, culture and inoculation proved to be the diplococcus of pneumonia. Anatomical diagnosis at autopsy:

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Purulent cerebro-spinal meningitis, acute endocarditis, pulmonary edema, cloudy swelling of the kidneys.

Case 6. (*Pneumococcus septico-pyæmia without lung involvement.*) Carrie R., aged forty-three years, a seamstress, entered December 1, 1898. No history as to family, previous illness or habits could be obtained, history of the present illness coming from a friend. The illness began three days before admission, with a very severe frontal headache, and vomiting lasting for thirty-six hours. She had several chills during the first night, and was very delirious, so that restraint was necessary. She was taken to the Detention Hospital and from there after a few hours to the County Hospital.

Examination showed a well-nourished woman, lying passively in bed, unable to give any account of herself. Elbow, wrist, knee and ankle joints were red, swollen, painful and tender; skin negative. Heart, lungs and abdominal organs were also negative. Urine, acid, clear, 1028, contained a trace of albumin, with fine and coarse granular casts. Nervous system: Pupils were unequal, the right being larger than the left, reacting to light. There was rigidity of the neck, but no paralysis, no Kernig sign. Pulse was 96, axillary temperature 99°, respirations 28. Lumbar puncture showed diplococci answering the description of the pneumococcus; extracellular.

December 2d, pulse 120, axillary temperature 100.3°, respirations 48. There was coma, slight icterus, no eruption, but retraction of the head and rigidity of the neck. The joints as before, no paralyses. Bilateral choked disc was more marked in the left.

December 3d, pulse was 120, temperature 100.3° per rectum, respirations 60. Resonance over both lower lobes was impaired, more marked in left than right; breath-sounds loud and accompanied by a few crepitant râles. The heart was not enlarged, both basal tones were pure and accentuated, pericardial friction noted. There was slight external strabismus, right-sided ptosis, head turned to the right, beginning herpes labialis on the right side. Left wrist was punctured, yielding a few drops of thick whitish mucopus showing pneumococci. Blood smears show the same organism. Lumbar puncture was repeated, but no fluid obtained.

Diagnosis—Diffuse infection by the pneumococci causing meningitis, pericarditis, and multiple arthritis.

Autopsy, by Dr. Hektoen, showed a small amount of purulent fluid in the pericardium. Lungs showed hypostasis below and an old healed tuberculosis in the right apex. The kidneys showed an acute degeneration. Brain and cord, diffuse purulent meningitis, and multiple arthritis. Bacteriologic examination showed pneumococci in the blood, pericardium, meninges and joints.

100 State street.

NOTE.—Cases 2, 4 and 6 were under the joint care of Dr. Robert B. Preble and the writer in ward 24 of Cook County Hospital. These cases have already been reported by Dr. Preble, and writer uses these in this paper with the kind consent of Dr. Preble.

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THE INDUCTION OF PREMATURE LABOR.

BY JOS. B. DeLEE, M.D.

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This means the artificial induction of labor after the fœtus is viable, but before term. The operation is becoming not infrequent of late, and the writer has deemed it advisable to review the indications for the operation, and its limitations, because there is hardly any doubt but that it is sometimes undertaken lightly and without a proper appreciation of its effects upon the mother and upon the fœtus. There is also no question that conditions arise more frequently in the latter decades for the premature interruption of pregnancy than in former times, which is, without doubt, due to the altered conditions of living, to an increase of certain preventable diseases, to irregular modes of life, and to a greater appreciation of the complications of pregnancy.

The induction of abortion and of premature labor has been practiced criminally since time immemorial, but the induction of labor for a clear scientific indication is only 160 years old. The induction of abortion as a scientific indication has been done for many centuries, particularly for contracted pelves; indeed, contracted pelvis is one of the main indications at present for the induction of premature labor, and to a much slighter extent for the induction of abortion.

There are four grand indications for the operation:

1. Contracted pelves.
2. Those diseases which are incident to pregnancy.
3. Diseases which are accidental to pregnancy, and
4. In a very few and gradually diminishing number of cases, habitual death of the fœtus after viability but before term.

Regarding the first indication, contracted pelves: Before the advent of symphysiotomy, premature labor was done to avoid craniotomy on the living child or Cæsarian section from the relative indication at term. The indications lay in those cases where the pelvic contraction was between 7 and 8 cm., that is, where the conjugata vera was between 7 and 8 cm. in length. In those cases where the previous labors had shown that the pelvis was contracted and labor had been terminated by

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either version and extraction, craniotomy or Cæsarian section, very often the advice was given in a subsequent pregnancy to return at the seventh month for the induction of labor, at which time, the development of the child being under normal, the delivery could be spontaneously accomplished without the mechanical difficulties. Now symphysiotomy has encroached on this indication, and has made the problem still more difficult.

In a pelvis of 7 to 8 cm. four operations are to be considered:

1. Cæsarian section, from the relative indication;
2. Symphysiotomy;
3. Craniotomy, as a secondary operation, after an attempt with high forceps;
4. The induction of premature labor.

Of course the induction of premature labor can only be considered when the woman applies to the physician at the time that the child has developed only so far that it can safely go through the contracted pelvis. At the time of labor, the three former operations have to be considered. Whether they are to be considered as elective or whether they are to be considered as secondary operations depends, among other things, upon the size of the child and upon the estimation of the probable mechanical disproportion between the head and the pelvis. If the child at term is small and undeveloped, the high forceps or version and extraction may in a few instances deliver it safely through a pelvis of this degree of contraction. In flat pelves above 8 cm., and in generally contracted pelves of above 8½ cm. (c.v.), the probabilities of success with version and high forceps increase, unless the child is over-developed, a fact which must always be taken into consideration.

Pinard of Paris says that there is no more use for premature labor in contracted pelves, now that symphysiotomy has become an accepted operation.

In cases of high degree of pelvic contraction, below 6½ cm., some authors have advised the induction of labor combined with symphysiotomy; this in order to avoid the Cæsarian section at term. This advice is not good, because the maternal mortality of symphysiotomy is not low, and that of premature labor for the child is very high.

The question whether a woman should be allowed to go to term and then undergo Cæsarian section or symphysiotomy, or should have labor prematurely induced, is a very difficult one to decide. One has to consider the circumstances of the patient, the possibilities of the child obtaining proper attention after labor—for example, the incubator and

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sufficient nursing; the individual skill of the operator, and the possibilities of obtaining good facilities for the major operations.

It must not be denied that the prognosis for the child in premature labor for contracted pelvis is bad. Between the 32nd to the 36th week the average biparietal diameter is 8.7 cm. From the 36th to the 40th week it is 8.9 cm. About the 30th week the biparietal diameter is 8.1 cm. The chances of compression of the head in a pelvis between 7 and 8 cm. are great, but the head is softer usually and more easily moulded. The best results are obtained when the contraction is between 8 and 9 cm. in cases where craniotomy was done in a previous labor, but just this field is claimed by symphysiotomy. There are other things to be considered under this heading, such as conditions that produce contraction of the inlet, cysts, pelvic exudates, tumors of all kinds, especially cervical fibroids, a very large child. Patient has a history of large children. After careful investigation as to their authenticity, one may induce labor before term.

The question must be laid before the mother, and the dangers of Cæsarian section and symphysiotomy at term described. Likewise the prognosis of premature labor for both considered. Let her decide. But the physician can sway the judgment of the patient in the direction he thinks best, and should only advise one of the graver operations at term under the most favorable circumstances. As a rule, women of the higher classes will elect premature labor, but where the maternal instinct is strong, the Cæsarian section may be selected.

In the second indication, diseases incident to pregnancy, in which the life of the mother is endangered by the continuance of the condition, we have, first, eclampsia. Opinions are divided regarding the interruption of pregnancy when eclampsia has broken out. Formerly a purely expectant treatment was advised until the attacks passed over, then to induce labor, or tide the patient over to term. In the 70's it was advised to terminate every case at once, but now a middle position is assumed, although the majority of accoucheurs lean toward the immediate termination of pregnancy, but with milder measures than were formerly employed.

The teaching of the writer is as follows: After eclampsia has broken out, the treatment should at first be purely medical, with a view of stopping the convulsions. If, in spite of the cathartics, the sedatives, the sweating, and the salt solution, the convulsions increase in number and become more severe, the interruption of pregnancy is indicated. Should at any time labor be spontaneously inaugurated, which not seldom occurs, then every effort should be made to hasten the delivery. Should,

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however, the woman hold her own by the aid of medical treatment, wait until the convulsions cease and then allow the woman to go on to term, observing the proper hygienic precautions. Not seldom the child dies during the attacks, and labor will come on sooner or later. It is not necessary in these cases to interfere.

Second.—The Kidney of Pregnancy. As a rule, the kidney of pregnancy does not produce symptoms which jeopardize the life of the woman, but occasionally there are in addition toxemic symptoms combined with the findings in the urine, which indicate interference with the pregnancy. Just where to draw the line between the kidney of pregnancy and the actual Bright's disease is hard to determine. This point will be taken up under a later heading.

Third.—Placenta Prævia. The writer holds there is no expectant plan for the treatment of placenta prævia. It is the physician's duty to place the patient under constant medical supervision until she is delivered and out of danger. As a rule, the child is viable when the symptoms of placenta prævia become marked. Therefore, there is but little to be gained by waiting, and much to be lost. Unless the patient is under circumstances of instantly obtaining proper medical assistance, the induction of premature labor is urgently demanded. Even when the patient is in a hospital the writer holds that she is safer under the induction of premature labor than under an expectant plan of treatment. She may have a hemorrhage at night, and may within a few minutes lose enough blood to seriously jeopardize her life.

Fourth.—Chorea, aggravated by pregnancy, may be a fatal disease. Premature labor not seldom occurs spontaneously, and shows us the way nature adopts to heal these cases, but premature labor may occur too late, the patient dying before delivery or from exhaustion after delivery.

Fifth.—Pernicious Anæmia. Pernicious anæmia occurring during pregnancy is a very fatal disease, and often premature labor is not able to prevent such a termination.

Sixth.—The uncontrollable vomiting of pregnancy sometimes persists after the child is viable, but usually the question is whether or not to induce abortion. There is no field in obstetric practice that allows greater scope for individual opinion than the induction of premature labor or abortion for the uncontrollable vomiting of pregnancy. As a general rule, a physician feels impelled to interrupt the pregnancy earlier than is absolutely necessary. Modern methods of treatment have diminished the number of cases requiring this procedure, and increased

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individual experience will show that there is less and less occasion for it. The symptoms of uncontrollable vomiting are very often simulated for the purpose of inducing the young physician to perform an abortion, and an existing vomiting will be exaggerated for such purpose. An early diagnosis and the immediate recognition of the serious tendency of the nausea and vomiting will warn the physician to put the patient at once under the best possible surroundings and will obviate in a large measure the necessity for performing this operation. A general statement regarding the indication under this heading may be made: When the nausea of the patient is becoming more and more evident, when the nausea and the vomiting are continuous with and without the suggestion or sight of food, when the temperature begins to rise, and when the patient begins to have hemorrhages from the stomach and gums, the time has come, and in some instances passed, for the interruption of gestation. A proper and conscientious application of the known and accepted remedies (not all the proposed remedies) should have preceded the consideration of an operation.

Under the third general heading may be mentioned accidental diseases which endanger the life of the woman, so that she may die before the spontaneous termination of pregnancy. It may be necessary to spare the woman the danger of a labor at term or to avoid Cæsarian section on a dead or moribund patient.

Bright's disease is the most common indication under this heading. Opinions are much divided as to the propriety of inducing the labor. Many obstetricians and many medical men incline toward an interfering policy, which is also the opinion of the writer. When Bright's disease has been determined to exist in a pregnant woman, she should be kept under constant and painstaking observation. The object is to reduce the symptoms, to obviate the danger, and to tide the woman over until viability of the child at least, or, if the symptoms subside, until term. The indications for interference will be found along this line.

When, in spite of careful medical treatment, the œdema increases, hydroperitoneum or hydrothorax appears, when the albumin persistently remains the same or increases, or a persistent diminution of the amount of urine or the total solids is apparent, when the symptoms of deficient excretion become aggravated, above all, with symptoms arising indicating the approach of eclampsia, the termination of pregnancy is indicated. Ten days is the limit during which to observe an increase or the maintenance of the symptoms, at the end of which period, or before, one

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will or will not terminate the pregnancy. Still, one will interfere at any point where the symptoms above referred to become apparent.

Other indications are tuberculosis, emphysema, and heart disease; but one must carefully weigh the differences between induced labor and labor at term. As a rule, it will be found that there is but little difference, and it will be better to allow the patient to go on to term.

Tuberculosis gives the most difficult problem, especially when the tuberculosis is discovered at an early period of pregnancy. The patient will usually be very anxious for offspring, as she will understand that she is not to become pregnant a second time. Sociological questions will usually have no weight with her. A tuberculous individual should not marry. If they do marry, the woman should not conceive. If she conceives it will probably be better to let her go on to term, and if the child lives, she ought not to nurse it.

Insanity during pregnancy, except in rare cases progressively growing worse, does not justify the operation.

Carcinoma of the cervix does not indicate the induction of premature labor. If the carcinoma is discovered early enough in pregnancy to admit of the total extirpation of the uterus from below, this should be done. If, after viability of the child, and there is good prospect of a radical cure by extirpation of the uterus, this should be done as soon as the diagnosis is made. The Porro operation may be performed, and the cervix extirpated from below, or the child may be removed from the abdomen and then the uterus extirpated *in toto* from below or above. If the carcinomatous disease is too far advanced to permit the radical cure, it is probably better to allow the patient to go on to term and then do the Porro operation.

Under the fourth general heading, habitual death of the fœtus after viability but before term, we have occasionally an indication for the interruption of pregnancy. There are cases where a short time before the child is to be delivered it dies without apparent reason. Most of these cases will be found, on close investigation, to be the result of syphilis. Next in frequency, Bright's disease; then profound anæmia; but it may be impossible to determine the cause. If you cannot determine the cause, treat the woman and sometimes the man for syphilis, unless the proof of its absence is convincing. The writer had one case of thirteen stillbirths. On no other ground than this, the woman was treated with mercury and delivered of a living child. This child became intensely jaundiced after delivery and was likewise treated with mer-

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cury, with recovery. The woman is now again pregnant and undergoing mercurial treatment.

For the induction of abortion there are several indications not comprised in the above list, but the induction of abortion is not considered in this paper, nor are all the indications that can arise that would induce one to terminate gestation, comprised in the above enumeration. The writer has sought simply to indicate in a general way the lines along which indications may be found.

The operation is governed by certain conditions. First of all, the child must be living and viable, and the question of viability must determine the time for the induction of labor. Before the 28th week there is very little outlook for a living child. Between the 28th and the 32d week the majority of the children die. After the 32d week, to the 36th, the prognosis for the child is good, for now the fœtal skull is nearly as large as it would be at term, but more easily moulded, which makes a material gain, which is of particular value when one induces the labor for contracted pelvis. In general, the best time for the induction of premature labor will be from the 32d to 35th week, being determined by the date of menstruation, the time of one coitus, the date quickening, by means of mensuration with the pelvimeter, or estimation of the size of the baby with the hands, and finally by means of Müller's procedure, which consists in every week or two trying to force the head down into the pelvis to see at what time it is just unable to get through the inlet. Further, the child must be living and in good condition. If the fœtus is dead, this is a contraindication to the operation, because delivery occurs sooner or later. In the absence of sepsis, one should therefore wait.

Secondly.—The mother must be in good health, or relatively so. It is not advisable to induce labor on a dying woman.

Third.—The degree of pelvic contraction must not be too great. Below 7 cm. in a flat pelvis and below 7½ cm. in a generally contracted pelvis, it is not safe to induce labor. Here, unless abortion is done in the early months, the patient must go to term.

Fourth.—We must have the consent of the mother, and, fifth, a consultation should always be insisted upon. The fallacies of human judgment are such, and the responsibilities assumed so great, that this is demanded.

As far as prognosis is concerned, there is very little danger for the mother, if the operation is done by proper hands. The greatest danger is sepsis, and after that, too great haste in delivery, causing injury to

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the soft parts; but if these two are avoided, the woman will not die except she dies from the condition which indicated the interference. As far as the child is concerned, fully 30 per cent perish, but now since the incubator is used so extensively the outlook for the child is vastly improved. One must not forget that the severity of the labor has a great deal to do with the survival of the child, as a child that has to be forced through a contracted pelvis not seldom suffers during the act.

A few words regarding the methods to be applied in bringing on uterine contractions. The most generally practiced method is the introduction of a soft rubber solid bougie into the uterine cavity and allowing it to remain there until labor pains are evoked. Another method is the perforation of the bag of waters, which almost never fails to bring on the contractions, and a third method is the introduction of rubber bag dilators into the cervix and the dilatation of the same. Many other methods might be mentioned, just to be condemned, as the use of the hot douche, the carbonated douche, the application of electricity to the breasts and uterus, the injection of glycerine into the uterus, etc., etc. The writer has, in all of his cases, employed the dilatation of the cervix by means of rubber bags as the method of election. This method not only brings on labor pains, but it also prepares the parts for delivery. It is safe, quick, and convenient, providing it is done with the proper precautions.

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SYPHILIS FROM A DENTAL STANDPOINT.

BY L. BLAKE BALDWIN, M.D.

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I have found that dentists give but little consideration to this very important subject. Important as almost all cases present, at some time during the course of the disease, mouth lesions which should be recognized by the dentist for two reasons: First, that he be able to guard against infecting himself; second, that he lessen the chances of infecting others. To carry this reasoning still further, if the dentist does not recognize syphilis in a patient's mouth, will he be able to recognize it if he contracts it himself? If he does not recognize it in himself, how many people will he expose before the condition is diagnosed for him?

Fournier in his work collected 1,124 cases of extragenital chancre, of which 847 occurred in the region of the head, most of them being located about the lips. Chancres of the lips are not so uncommon as one would believe, during the past year twenty-five cases having come under my notice.

One case which will be of interest to you gave the following history:

Dentist, American, aged thirty-two, first noticed a small ulceration on the lower lip which rapidly enlarged. He applied dusting powders and ointments, which seemed to have little effect; finally the condition became so annoying that he consulted a physician, who referred him to me for diagnosis. He absolutely denied having kissed anyone except his wife, but on questioning him I found he was in the habit of holding one instrument in his mouth while working with another. Acting upon my suggestion he brought me a list of the patients that he had treated during the previous six weeks. On going over them, he remembered one woman who had white patches on her tongue. Upon reëxamining her mouth, he found several large ulcerations on her tongue and both tonsils were involved. She also had enlarged cervical glands and beginning syphilitic alopecia. The woman in this case, as in many others, did not know that she had syphilis. Four weeks later the secondary eruption appeared on the dentist's body and treatment was begun.

There are some very interesting cases reported by Dr. W. L. Baum in the *Journal of the American Medical Association* of January 27th, that bear on this subject. I will give the histories of three of the cases in full.

Case 1. On October 8, 1896, there appeared at my office a young man 28 years of age, who came to consult me in regard to a peculiar eruption which had caused him much annoyance, not because of any irritation at the site of the lesions,

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but rather because of the consequent disfiguration. He gave the following history. He is an American; has been practicing dentistry for four years; is married and the father of two children; had never had a skin eruption before; there was no history of gonorrhea or chancre. The present eruption occurred about two weeks previously in the form of small red blotches, erythematous in appearance. It was accompanied with violent headache and a feeling of general debility. Since then small papules appeared on the chest, back, face and extremities, and also on the scalp. There was general indolent adenitis present. The patient could not remember any particular lesion preceding these except a very stubborn small sore upon the index finger of the right hand near the matrix of the nail. This he explained by saying he had accidentally scratched himself in this place with a dental instrument while working upon the teeth of one of his patients. The epitrochlear and axillary glands upon the right side were much enlarged and somewhat tender to the touch. There was no doubt this dentist had syphilis, and that his infection was either from a scratch with one of his instruments previously used upon a patient with syphilis or infection of the wound from the patient upon whose teeth he was working at the time. The latter theory he scouted, saying that she was a very estimable woman, a social leader, and one in whom it would be almost a crime to suspect the presence of the disease.

Case 2. A man, aged 22 years, came to the clinic of the Post-Graduate School in January, 1895, with a large papular syphilide. The glands in the neck were very much enlarged, and there was a sore upon the lower lip, at the internal border of the mucous membrane at the right side. He had not been exposed to any infection that he knew of. He had been under the care of the dentist for some weeks, and remembered sustaining a slight injury during the course of the dental work.

Case 3. A man, aged 47 years, an express-driver, in September, 1897, first noticed a small, hard lump on the edge of the upper lip on the left side, near the margin of the mucous membrane, which became hard and was accompanied by considerable swelling. The patient remembered that a few weeks before he had received an injury at this point, while under the care of a dentist. The glands generally were enlarged, *maculo syphili* present.

I could present many additional illustrative case-histories from my own practice, but experience has shown that the syphilitics coming under the dentist's care are not those suffering from extra-genital chancre, but those presenting mucous patches, commonly known as *smoker's patches,* which resemble in some cases ulcerative stomatitis. In these patches lie the danger to the dentist and his patients. 1st. They are as infectious as the initial lesion. 2d. They occur in ninety cases out of a hundred during the first year of the disease. 3d. Very few dentists are able to recognize the condition. 4th. If the patient is asked if he has syphilis he will deny it; some because they do not know it; others because they wish to conceal the fact. I suppose many of the dentists who read this article will say: "But I haven't any syphilitic cases in my practice." Don't be too sure of this, as syphilis is not an uncommon disease and occurs in all walks of life, while the victim does not write to the home paper for publication in their "local" column the news that he has syphilis. You all know men who have gonorrhea or have had it; did you ever stop to think that syphilis is as easily acquired and that it is only a matter of luck as to which of these diseases they get?

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Elliott R. Carpenter, one of the well-known dentists of Chicago, in an article published in the *Dental Review,* says in closing: "The undeniable fact that there exists such a gross ignorance on this subject among our profession is undoubtedly due to the lack of professional information in regard to it. While it should be considered as thoughtfully and comprehensively as other diseases of far less prevalence, it is not intelligently recognized at all in the curriculum of any dental college in this country. That this fact is true is as indisputable as its existence is reprehensible."

It is not the purpose of this paper to take up the differential diagnosis of syphilitic lesions of the oral cavity, but rather to point out a few of the dangers of not being able to make a diagnosis. The following points may, however, be of assistance in making a diagnosis.

The initial lesion (*chancre*) usually appears about three weeks after inoculation as an ulceration with an indurated base. The glandular involvement first shows about three to five weeks after the initial lesion. The secondary eruption shows about seven to ten weeks after the first appearance of the initial lesion, and following closely upon the secondary eruption we have the mucous patches. These patches are among the most frequent and most recurrent of the secondary manifestations and are found chiefly in the oral cavity. The tertiary stage of syphilis may be first noticed from one to twenty years after the initial lesion. This stage of syphilis is one of destruction, and one of the most frequent locations is in the oral cavity on the palatal or alveolar process of the superior maxillary bones. Many cases have come under my notice where almost all the hard palate had been destroyed. The odor coming from this destruction of tissue is typically gangrenous.

I make it a rule in my practice to refer all cases demanding syphilitic treatment to a dentist, with instructions to remove all calcareous deposits and fill temporarily all teeth affected with caries, as it has been proven that a patient will not be so apt to be salivated if the teeth are in a healthy condition. I think it will be well to quote a dentist on the prophylactic measures he uses in operating upon such cases.

Continuing, the writer just quoted says: "It seems quite proper that such a subject should point out to us, as dentists, the need of great caution and a definite moral. If we suspect or can prove the existence of syphilis in the patient, every precaution should be used against inoculating ourselves and others. Avoid operating, if possible, until after the chancre of the mouth or lips, or the mucous patches have been cured.

"Operate for syphilitic patients at the close of the day so as to allow

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as much time as possible to elapse between such operations and those of a healthy mouth. Have separate instruments, clamps, water glass, mouth mirror and saliva ejector for the exclusive use of these patients. Always use rubber dam when possible, as it keeps the saliva from the fingers and also prevents the possibility of the patient coughing in your face, for should a minute particle of saliva strike you in the eye, a chancre might result. Handle all dentures of strange patients carefully, as this is one of the possible means of being inoculated. Boil all instruments thorougly in a pan used for them exclusively, and after drying, place for a few minutes in a solution of 1-5,000 bichloride of mercury. The care of your hands is very important. Before and after operating wash your hands carefully with antiseptic soap, and then in a 1-1,000 solution of bichloride of mercury, and it has always been my practice to scratch a little toilet soap under all my finger nails before placing them in the patient's mouth."

In closing I would like to suggest a few "don'ts" for dentists:

Don't hold instruments in your mouth.

Don't forget to boil your instruments.

Don't allow your diagnosis to be influenced by the patient's social position.

Don't think every ulceration in the mouth is caused by the teeth.

Don't forget that chancre occurs on the lips, tongue, etc.

Don't forget that mucous patches are as infectious as chancres.

Don't lose sight of the fact that you can be infected.

Don't lose sight of the fact that you can infect others.

Don't think because you haven't been you may not be infected.

Don't place too much dependence upon what a patient says when you think he has syphilis, because he may have it and not know it.

100 State Street.

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SELECTIONS.

THE PLANTAR REFLEX AND BABINSKI'S SIGN: THEIR DIAGNOSTIC VALUE IN SPINAL DISEASE.*

BY F. W. LANGDON, M.D.

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Mr. President and Members of the Academy: It is my privilege this evening to ask your attention to a new and important sign of spinal disease, which it is proper and convenient to designate as "Babinski's sign," and which has, so far as I know, received little or no notice in America; a sign which, if present indications be confirmed, renders the plantar reflex as important in a diagnostic sense as is the knee-jerk; and which may even throw a clear light on some cases where the state of the knee-jerks and of other muscle-jerks leaves us in doubt.

Babinski, in July, 1898, directed attention to the practical importance of variations in the plantar reflex, as indicating the presence or absence of lesion of the pyramidal tracts of the cord. His investigations revealed the fact that the normal *reflex* response to slight plantar irritation, in healthy adults and in children after learning to walk, is by *flexion* of the toes; whereas, in all persons with lesion of the pyramidal tracts, the corresponding response was by *extension* of the toes. Extension occurs also in normal infants who have not walked, and is explained by him as due to the incomplete development of the pyramidal tracts, which is normal to this age.

Babinski's observations, therefore, are postulated as follows by Collier:

1. "*Extension* of the toes, especially of the great toe, as a reflex response to plantar irritation . . . was *pathognomonic of a lesion of the pyramidal system.*"

This sign he names "*le phénomene des orteils.*"

Babinski notes two exceptions to this rule:

1. As stated above, *extension* is normal in infants under walking age.
2. He observes that in cases of *total transverse lesion* of the cord

* A clinical demonstration before the Academy of Medicine of Cincinnati, January 8, 1900.

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he was unable to obtain any plantar reflex. (Collier's observations, quoted beyond, seem to negative this latter exception.)

As we have so few symptoms of disease that are justly entitled to be called pathognomonic, it is obvious that these observations of Babinski, if confirmed, contribute an important addition to our diagnostic resources in a region of the nervous system where such aid is frequently desired.

Van Gehuchten (quoted from Collier) has confirmed these observations, as has Brissaud in part, and Collier, in the current volume of *Brain,* presents an extensive clinical study of the subject based on observations of five hundred patients. Three hundred of these were cases of nervous disease, one hundred were children with miscellaneous affections, and one hundred were adults free from acute disease and presenting no obvious nervous lesion. He finds, in addition to the phenomena noted by Babinski, that the normal *infantile* response (by *extension*) differs markedly from the pathological adult response (by *extension*), (1) in being very brisk in the former, whereas in the latter it is often deliberate; (2) in the normal infantile (extensor) response there is usually conspicuous *eversion* of the foot, whereas in the pathological adult (extensor) response there is slight *inversion* of the foot. A tabulated summary, indicating other differences and resemblances, may be found in *Brain,* 1899, p. 81.

Collier also states that a "crossed plantar reflex" (a response in the opposite foot) may usually be obtained, both in normal and in pathological states, and that this consists almost invariably of a slight flexion of the toes (of opposite foot), preponderating in the great toe. This is the case, he states, whether the lesion be hemiplegic or paraplegic. The present writer has been unable to confirm this observation as to frequency, it being the exception rather than the rule in his experience.

According to Collier, "it is doubtful whether the plantar reflex is ever constantly and completely absent in healthy subjects. Its apparent absence may be due to coldness or moisture of the feet. These corrected, the reflex is obtainable. In rare cases, however, in healthy subjects it may be indicated only by contraction of hip and thigh muscles, notably the tensor fasciæ femoris." This is considered equivalent to the *flexor* or normal response, the reflex arc passing through the same cord segments (fifth lumbar and first sacral).

Collier concludes that: "The clinical and pathological results obtained in this investigation have, for the most part, confirmed Babinski's conclusions, and exceptions to his rule, that the *extensor response indicates a lesion of the pyramidal system,* have been found so few as to 'prove the rule.' It (the extensor response) may be the *only unequivocal objec-*

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tive sign of a lesion of the pyramidal system. This form of reflex is never found under other conditions, and is a sign of great clinical value. In cases of total transverse lesion of the cord the extensor response is the only reflex phenomenon present in the lower limbs." (Here he differs from Babinski (*q. v.* above), who states that the plantar reflex also is abolished in total transverse lesions.

"In functional (hysterical?—L.) cases the plantar reflex is often difficult to elicit, and there is frequently no response in the foot, but in such cases a response may usually be obtained in the hip muscles (tensor fasciæ femoris especially—L). This form of reflex is (equivalent to) the *flexor* response.

"In tabes dorsalis the plantar reflex was entirely absent in 20 per cent of the cases. . . . The reflex, when present, is the flexor response.

"In peripheral neuritis the reflex, when present, is the flexor response. The hip muscles (tensor fasciæ femoris especially) respond alone in some cases.

"In cerebral and cerebellar tumors the flexor response occurs if there be no involvement of the pyramidal system.

"In neurasthenia, chorea, paralysis agitans, poliomyelitis, myopathy and sciatica the flexor response is found.

"In lesions of the pyramidal system a degree of pes cavus is frequently found. It is intimately associated with the extensor response in the plantar reflex, and is produced by a state of reflex hypertonicity preponderating in those muscles which respond most vigorously in the plantar reflex. In all such cases of pes cavus evidence of increased tone in certain muscles can be demonstrated (tibialis posticus, peroneus longus, extensor proprius pollicis, extensor communis digitorum, tibialis anticus).

"The theory that the pes cavus of spastic conditions is due to weakness of the interossei is not justified."

Babinski records a case of strychnine poisoning where extensor response was present, disappearing after recovery. This is confirmed by Collier, who found extensor response in normal adults five minutes after injection of large (one-sixth to one-third grain) doses of strychnine nitrate. The extensor response persisted for half an hour. The extensor phenomenon thus becomes an important adjunct in the diagnosis of strychnine poisoning.

In *partial lesions* of the pyramidal system, according to Collier, "the following are common clinical variations:"

1. "Extension of great toe, with flexion of four outer toes.
2. "Slight flexion of all toes, followed by slow strong extension.

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3. "Contraction of tensor fasciæ femoris and of the extensor proprius pollicis with the minimal stimulus.

4. "Stimulation of the sole may sometimes produce the flexor and sometimes the extensor response."

In other words, in slight or partial lesions of the pyramidal tracts the normal flexor response is always interfered with in some degree.

Should any justification be needed for the very liberal quotations from Collier's paper, it is to be found in the importance of the subject, the value and thoroughness of his investigations and the limited circulation in America of his medium of publication.

FIG. 1. Normal Infantile Reflex.*

The patients before you have been selected with a view to showing various forms of the plantar reflex.

Case 1 is an infant four months old. It exhibits, as you see (Fig. 1), a marked extension of all the toes on slight irritation of the sole.

Case 2, a man of fifty-eight, has a spastic-ataxic gait, with normal knee-jerks and no ankle clonus. He is subject to prolonged paroxysms of tonic convulsions without loss of consciousness, has segmental anesthetic areas, contracted visual field in his one good eye, and other marked evidences of hysteria. Judged by his gait alone, he would make a fair clinical picture of the disease called "ataxic paraplegia," which would imply a lesion of the pyramidal tracts and of the columns of Goll in addition. The marked flexor form of plantar reflex (Fig. 2) rules out the first lesion, and the presence of good knee-jerks, with absence of Argyle-Robertson pupil, negatives the tabetic theory. The diagnosis of a purely functional nervous state, so far as the legs are concerned, is con-

* From the original plates, kindly loaned by Dr. J. C. Culbertson of the *Lancet-Clinic*.

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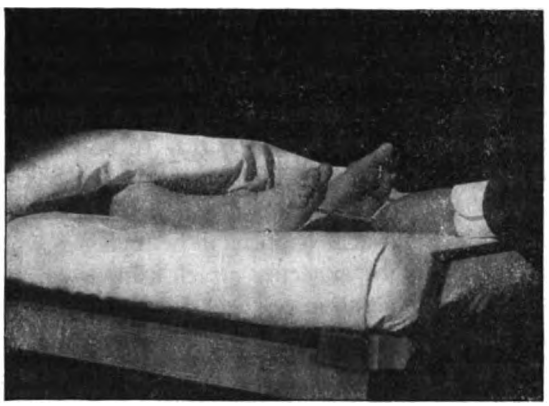

FIG. 2. Flexor Reflex, naturally seen in adults. Case of Functional Ataxia.

firmed by the fact that his gait has been at times entirely normal in the several years I have had him under observation.

By way of contrast I would ask your attention to Case 3, with a paraplegia of undoubted organic origin. He has two foci of softening, probably from thrombosis in the lower dorsal cord. There were two distinct attacks, one on each side, the effect being that of a transverse lesion. Both pyramidal tracts are involved, as shown by the plus knee-jerks, double knee clonus, and finally, as we see (Fig. 3), by marked extensor response of all toes in both plantar reflexes.

Case 4 is one of considerable interest from a diagnostic point of view. For the privilege of showing him to you I am indebted to my colleague, Dr. G. A. Fackler. He has Argyle-Robertson pupils, Rom-

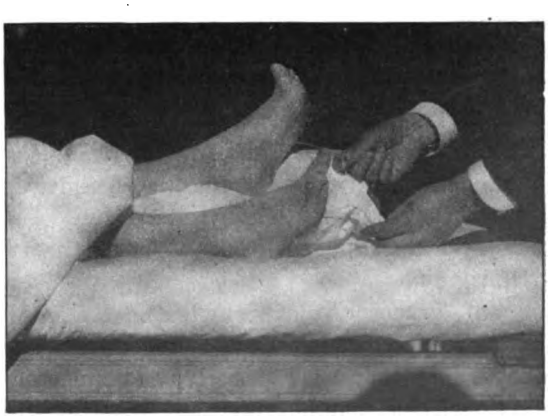

FIG. 3. Extensor Reflex in adult. Indicating interruption of Pyramidal Tracts.

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berg sign, ataxia of gait and of hands, with sensory defects of tabetic type in the legs. Nevertheless, we find he has good knee-jerks. Some might class this case as one of "high-up" tabes, and so account for the preserved knee-jerks. Examination of the plantar reflex, however, as you see, reveals a marked *extensor response* in both feet. If he had uncomplicated locomotor ataxia the response would be flexion or absent; hence, we assume the probability of a lesion of the pyramidal tracts causing a return of knee-jerks as happens in hemiplegics who have tabes. Since there is no history of an acute attack and no ankle clonus, the lesion is probably a degenerative one not far advanced. Without the plantar reflex a correct diagnosis would be impossible. With the extensor response, however, the probability of a degenerative lesion—in other words, a postero-lateral sclerosis—is very strong.

In hemiplegics examined by me I have found the extensor response on the paralyzed side as early as the second or third day of the disease, the sound side usually presenting a flexor response.

In one case of uremic coma, where the patient voluntarily moved all limbs, apparently with equal power, a right-sided extensor plantar reflex furnished the basis of a diagnosis of right hemiplegia, which was confirmed subsequently by a clear history of an old attack of hemiplegia on that side, and by the discovery of a small cicatrix in the left internal capsule extending from the thalamus.

I have tabulated 110 cases with reference to the plantar reflex. Eighty-three are cases of nervous disease, the remaining twenty-seven being patients without obvious nervous lesion.

So far as these observations go, they confirm the claims of Babinski and Collier that the *extensor response is practically pathognomonic* of pyramidal tract lesion.

The observations of Collier as to the equivalence of the tensor fasciæ lata response and the flexor plantar response is also corroborated.

The plantar reflex has been absent on both sides in only four cases in 110: One of tabes with plantar anesthesia, one of epilepsy with considerable dementia, one of melancholia, and one of senile dementia. In two tabetics it was absent on one side only.

In one case of Jacksonian epilepsy it was absent in the convulsed foot owing, perhaps, to rigidity.

The constancy of "extensor" plantar reflex on the paralyzed side in the organic cerebral hemiplegias is such as to render the "Babinski" sign here a very valuable diagnostic aid, especially in the unconscious patient, where every additional clue may be important. As shown in the tabulated cases, and in a considerable additional series of hemiplegias ob-

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served by the writer, the sign is present in both recent and "old" hemiplegics, appearing usually within a few hours after the "stroke," and before the knee-jerk returns.

Attention is also called to the well-marked "flexor" response in the single case of tetanus observed. Should this prove to be constant in this disease, it will afford another diagnostic distinction between tetanus and strychnine poisoning, since in the latter, as Collier has shown, "extensor" response is present.—*Cincinnati Lancet-Clinic.*

Multiple Spontaneous Gangrene.

Many writers upon Raynaud's disease have accorded malaria an important etiological rôle in the production of the disease. If this affection be looked upon as the result of a pure angiospasm, and to such cases alone it is conceded that the term Raynaud's disease should be applied, malaria can not be looked upon as a factor in the disease. On the other hand, multiple spontaneous gangrene as a sequence to malarial infection is an established fact, as is again witnessed by Osler's recent case reported in the *Johns Hopkins Hospital Bulletin.* The clinical summary of the case was as follows:

Malaria when six years old; typhoid fever twice, last attack four months before onset of present illness; illness in the middle of October, supposed to be influenza, more probably malaria; on November 2d, onset of spots of gangrene in both hands, instep of left foot and dorsum of right and on buttocks, subsequently on palms of hands, over right heel, occiput, etc.—rapid extension—complexion muddy—spleen enlarged—blood showed very many *æstivo-autumnal* organisms—temperature slightly elevated at first—subsequently no fever—rapid recovery under quinin.

There are three groups of cases of multiple gangrene:

(1) *Raynaud's disease.*—There have been previous well-marked vascular disturbances in the extremities ,syncope, asphyxia or hyperæmia), the gangrene is very often symmetrical, is usually slight in extent and limited to the fingers or toes, more rarely to the ear-tips or nose.

(2) *Multiple spontaneous gangrene of limbs.*—In young or middle-aged persons, without any obvious cause, massive gangrene of one, two or three extremities occurs. Many illustrations of this are recorded in the literature.

(3) *Multiple spontaneous gangrene in association with the acute infections.*—In measles, typhoid fever, typhus fever, scarlet fever, diphtheria and malaria, local gangrene may occur. There are multiple patches, not symmetrical, and the skin and subjacent tissues are more frequently affected than the extremities. While of course the phenomena of Raynaud's disease may occur as a sequence of any of the specific fevers, a large proportion of all the cases of local gangrene occurring during or after one of the fevers have nothing whatever to do with this affection.

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AGAIN THE QUESTION OF CANCER.*

BY ROSWELL PARK, A.M., M.D.
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If one may rely upon medical journals both at home and abroad as fair indices, the problem which both most perplexes and interests the medical world of to-day is still that of cancer. No better proof of this can be given than the timely appearance of the "Cancer Number" of the *London Practitioner* for April of last year (a review of which appeared in the RECORDER, Vol. I, p. 224) which aroused the greatest interest all over the world.

To go minutely into this subject requires that kind of study of figures and of maps which can only be satisfactorily given at the desk, and it is not my purpose to-day to carry you into intricacies of this kind. I am perfectly willing, however, to reiterate the essential conclusion which I have repeatedly uttered and published—namely, that cancer as a disease is certainly upon the increase, and that the matter of its *rate* of increase is subsidiary to this principal fact.

When voicing this opinion, as I often have to, I have been frequently asked, Is not this to be accounted for by improvement in diagnosis? And some are so sure that the answer to this should be affirmative that they dismiss the whole question with that satisfactory, self-given answer. Such reasoning is, however, fallacious. It is true that improved methods of diagnosis prevail and the disease is now recognized as formerly it was not. It is also true that certain lesions formerly considered cancer are not so now; actinomycosis, for instance, and other of the infectious granulomata. This, to be sure, will exclude only a certain small percentage of cases. But one feature of this matter I have never yet seen alluded to in print, and that is that just in proportion as diagnostic methods are improved and operations attempted earlier, just in that proportion do we get actual cures and save these patients from dying of the disease. If, therefore, such improvements be regarded as they should be, it will appear that mortality rates are being actually reduced as compared with the real number of cases. To me this really means a great

* Part of a paper read before the Medical Society of the State of New York, at Albany, January 31, 1900, published in the *Buffalo Medical Journal*.

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deal, and I do not hesitate to say that it should be a matter of pride with the surgical profession that they may be able to reduce the death-rate, while, nevertheless, the disease rate is slowly creeping up. More important, then, than to study the deaths is to note the number of actual cases of cancer occurring, and I believe that the experience of every surgeon living will tally with my own in this regard.

A most cogent plea for collective investigation of cancer has been recently published by Katz, of Hamburg (*Deutche Med. Woch., 1899, Nos. 16, 17*). He calls attention to the unsatisfactory explanation afforded by many of the theories now in vogue; and urges logically and convincingly in favor of the method by concerted investigation, and particularly the statistical method. It was Mars d'Espine who perhaps set us our first example in the direction of statistical study, when he reported the statistics for thirteen years in the Canon of Geneva, a careful study which has not yet found a sufficient number of imitators. The special interest of Katz's paper at present for us, is the corroboration which his own studies afforded of the statement which I have so frequently made, that there is every reason to think that cancer, as a disease, is upon the increase. Katz shows, for instance, from a study of Hamburg conditions, the experience of private practice and the mortuary as well as pathological statistics of the General Hospital there, as well as by the studies of E. Fraenkel, that in that city, for example, there is a well-marked increase in the percentage of cancer. Moreover, this statement is accentuated by satistics from all over the world, which seem to show that not only is the disease upon the increase, but that the age of liability is becoming younger, and that it is rather the better class of people than the lower in whom it seems to predominate. Katz concludes his paper by a recognition of the difficulty of collective investigation, and at the same time by a statement that it is of the greatest importance that it should be undertaken.

A topographical study of the disease will render great aid in solving some of its mysteries. As classical models for such study we may refer to Power's paper on The Local Distribution of Cancer and Cancer Houses, in the April, 1899, number of the *Practitioner*, the studies contained in the *British Medical Journal* before July 1, 1899, with the editorial comments thereon, and the paper by Lloyd Jones, on The Topographical Distribution of Cancer, in the *British Medical Journal* for April 1, 1899.

What could be more accurate, in such work, than Jones' method, which he describes as follows:

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Having obtained the list of houses in which persons had been taken ill with cancer, I proceeded to visit the houses and to mark each one on an ordnance map—scale of ten feet to a mile—showing the affected and the non-affected houses in red and black respectively. This map of the borough showed at once that certain districts were fairly free from cancer, while other regions were far more extensively affected. The areas most affected of all showed one case in every two to five houses; the most healthy areas, from this point of view, showed only one case (or no case) in every sixty houses.

The figures obtained were as follows:

Total number of houses concerned, 5,685; unaffected houses, 5,247; affected houses, 438. Showing a mean of one affected house to every 11.9 unaffected houses. Multiple cases in the same house divisible into: (1) Double cases, 7; (2) triple cases, 3.

But as showing what can be accomplished in rural districts in this same line of work, if only the necessary zeal and intelligence be applied to it, take the following illustration furnished by Dr. John E. Sutton, of Albion, Orleans County. He writes me:

During the last five years or so, there have occurred from all causes, within a range of one and one-eighth miles of a small hamlet near Albion, N. Y., (Rich's Corners) 16 deaths. Of these 9 were unquestionably from cancer; 2 were probably caused by cancer, judging from the history of the cases as learned from the friends. Of the remaining 5 one died of a pistol-shot wound, leaving 4 of the 16 as dying of disease other than cancer. There are at present 2 cases in the territory mentioned; one of them I operated upon a year ago, without recurrence as yet; the other is beyond help.

This letter is accompanied by a drawing which makes plainer yet the facts therein stated.

I wish that this report of Dr. Sutton's might stimulate many others to similar study and report.

Durante and Cohnheim believe that tumors proceed from embryonal remains. Thiersch taught a lessened resistance of connective tissue to epithelial encroachment; Hansemann and Hauser hold to an altered cell condition which they speak of as *anaplasty,* while Fabre-Domergue also believes in certain vague cell changes or cytotrophic alterations, and Ribbert regards tumor formation as unwonted cell activity and the escape of certain cell groups through proliferating connective tissue. All these statements, however, seem to be rather descriptions of cer-

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tain facts observed at various times, and they still leave the real question of *why* these cells act as they do quite untouched.

It seems quite fair to assume that as a preliminary to cancer formation we must assume a certain *predisposition* of tissues, which may be general or local, inherited or acquired. This is no more than we fully believe to obtain in other diseases to which cancer shows more or less analogy. We see what local predisposition may do under conditions of chronic irritation where we have cancer following chronic eczema, catarrh, ulcers, scar formation, or gall-stone, diseased teeth, mucous patches or other syphilitic lesions, or the presence of such foreign bodies as clay pipes, soot, paraffin and the like. It is, indeed, now a question whether such chemical irritants as enzymes may not contribute to cancer formation.

Again, in the way of local predisposition we see that nearly all cases of skin cancer occur on exposed parts of the body, face, hands, genitals or nipples; and when on other parts almost invariably on surfaces where there has been some lesion, as warts, eczema, sebaceous tumors, ulcers or scars. The only exception to this general statement is the hairy scalp, and yet this may be regarded as in a sense a well protected surface.

Cancer of the tongue is also found almost solely in men, because smoking, bad teeth and syphilis of the mouth mostly prevail in the male sex. Cancer of the ear begins nearly always on the upper and outer border, *i. e.*, the least resisting and most often irritated part, as by injury, frost-bite, etc., or else in those recesses which are hardest to clean. Cancer of the upper alimentary tract occurs by far most often at the site of previous lesions or irritations, *i. e.*, scars, fissures, etc. In the stomach and bowels we know that they are often preceded by ulcers. After food has been in one sense sterilized by gastric juice, bile and pancreatic fluid, it seldom carries cancer germs, and primary cancer of the small intestine is a great rarity. In the ileo-cecal region and the colon it becomes common again, and here it is especially that stagnation of the fecal current permits it.

Particularly about the breast and nipple, where chronic mastitis, subinvolution, and ulcers or fissures furnish the local predisposition, do we meet with cancer. Here, also, inherited cell proclivities may play a large rôle. But to external influences must be assigned the major rôle, as well as to such lesions as eczema, or intertrigo of overhanging mammæ, or the pressure of corsets.

So, too, with cancer of the uterus. Chronic tissue changes furnish the site for most of these lesions, and especially scar tissue, ectropion

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of mocosa, etc., while cancer of the endometrium is apparently inseparable from catarrhal lesions, placental relics or diseases. Even submucous myomata are accused of giving rise to cancer.

The apparently prophylactic effect of circumcision is well known, since Jews relatively seldom get syphilis or cancer of the penis, but gonorrhea often.

Cancer of the duct glands is relatively common as compared with those of the so-called ductless glands, which latter suffer much oftener from endothelioma and angeio-sarcoma.

Summarized, carcinoma takes its origin almost always at those places where chronic tissue alterations or scars have caused local changes which we may fairly regard as constituting a predisposition, or where retention of secretion or contents have produced the same effect. While all this cannot be said for sarcoma, certain other features stand out predominantly, which are equally significant.

It is evidently manifestly impossible to draw any sharp distinction between the true tumors and numerous other infectious lesions, whose parasitic origin is not now denied. We must, moreover, never lose sight of the analogies offered from the vegetable kingdom, where practically all xylomata or tree-cancers (many of which are fatal to the trees) are due to invasion of parasites either before or after traumatism of some kind, even such as frost and ice may produce.

We must remember that sarcoma of bone, like osteomyelitis, may be apparently produced after injury or exposure, and we can then view it only as the expression of the localized action of some parasitic circulating with the blood, and setting up disturbance at the point of least resistance.

Autoinfection with cancer is by no means so rare. Implantation cancer of one labium from the other is not uncommon, and the vagina is not infrequently infected from the os. When colloid, abdominal and ovarian cancers were more frequently tapped than now, implantation along the trocar tract was frequently seen. How often we see secondary cancer along the line of incision made for removal of the primary lesion, infected at the time.

Instances must be known to many of you, as they certainly are to me, of various members of the same family, in one house, succumbing one after another to cancer. I have elsewhere called attention to Behla's remarkable study of endemic cancer in the little town of Lückau.

There is no doubt but that many fungi can produce certain enzymes which have the power of exciting both cell proliferation and degenera-

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tion. So, too, Bejerinck, for example, has found that the juice pressed out from the larvæ of those insects which produce galls in trees has the same power of exciting proliferation of plant cells as have the larvæ themselves. (*Eckstein, Pflanzenzellen und Gallentiere, Leipzig, 1891.*)

Czerny and others have recently again raised the question as to the possibility of spontaneous retrocession of malignant tumors. This is a rare phenomenon in which I thoroughly believe, and to which I propose at some later time to devote special time and study. At present I am anxious to obtain data of carefully observed cases, and solicit your aid in securing them. Believing in it, as I am compelled to do, there comes up at once the query, How many cases of improvement after employment of erysipelas toxins or after exploratory operations may be due to it alone?

(The essayist then presented a list occupying several pages of reported cases of cancer occurring at precociously early ages.)

It is never possible to get away from that question of fundamental importance—What is the cause of cancer? Realizing the futility of purely personal effort in the solution of so large a problem, legislative aid was invited and finally secured. By means of this a laboratory has been well equipped and manned for the purpose. This laboratory has been organized in order to study all the problem includes, and in the broadest possible way. It is not committed to any particular view nor based upon a single idea. As the originator of that laboratory I wish to emphasize that my own papers on the subject, including this one, are not to be considered as anything more than my own personal views, save when so specified. When Dr. Gaylord thinks the time has come to publish the results of his investigations, and those of his co-laborers, then we may be said—as an institution—to stand committed to whatever views are at that time expressed. For myself, I have not hesitated to espouse the parasitic theory, for many years, and can only see in the labors of others, including those of my colleagues in the State Laboratory, constantly increasing confirmation of my beliefs. Yet these views are as largely the result of clinical as of pathological study.

Malignant tumors certainly constitute a morbid group which may be regarded as having strong family resemblances, and yet it is quite impossible to suppose that if of parasitic origin a single parasite should be at fault. One cannot imagine that epithelioma of the lip and sarcoma of bone marrow are necessarily due to the same parasite. Here, again, as so many times, we find a strong analogy between cancer and the infectious diseases. Suppuration, for instance, we know may be pro-

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duced by any one of numerous organisms. We acknowledge its parasitic explanation, while at the same time appreciating this fact. I want it to be emphasized that in all my own writings upon this subject I have never for a moment declared all forms of cancer to be due to a single parasite, but believe that there are numerous organisms which may produce this condition under favorable circumstances. If this be correct, we must first establish the general nature of the process and later try to identify the organism at fault.

When the State of New York by appropriation established a laboratory for the investigation of cancer it devolved upon those who had charge of the work to elaborate a rational plan by which the subject could be properly approached. Necessarily, the first steps in such an investigation had to be taken along conventional lines, and so extensive and yet scattered has been the work of various investigators of the subject, that it has required a considerable period of time and no small amount of effort to thoroughly collect and classify the material at hand. It was decided in the beginning that the subject must be as much as possible approached from all sides, but the limitations of our appropriation have thus far rendered it only possible to carry out an elaborate pathological and bacteriological research. From the beginning the plan has been to add to these two sides of the question a complete and full investigation along chemical lines. Aside from the fact that our present quarters and appropriation have thus far not permitted our undertaking this third branch, the proper man was not apparent, and it is only within a few months that such a scientist has been obtainable. In making to you a short report of the amount of work which has been accomplished, I wish to particularly emphasize that much of the work which may at first glance not appear of great importance has been none the less necessary, and has required as great care and precision as work which we are at present conducting and which gives promise of much that is positive. We may say in reviewing this portion of the work that our early efforts showed us that, while all of the various appearances described could be found in certain specimens, no method gave us constant results. Likewise we have been able to determine to our own satisfaction that histological investigation alone will never determine the nature of certain suspicious bodies which are to be found in carcinoma. As I stated before this meeting a year ago, examination of fresh tumors gave us more encouraging results, and we were able to determine the presence in all carcinomata of certain bodies resembling fat, but which could not be dissolved in ether or other fat solvents. Various attempts

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to harden and stain these bodies had met with only partial success when we came into possession of an article, published by H. G. Plimmer, in the Cancer number of the *Practitioner*. Plimmer has investigated during a period of six years over 1,100 carcinomata, and by a special staining method which in principle consists in using a fat fixative, osmic acid, removing the same by oxidation with hydrogen peroxide, and staining with special reagents, has succeeded in demonstrating the presence in practically all carcinomata of certain characteristic bodies which we are now able to say are identical with those which have been observed by Dr. Gaylord in the fresh state. Plimmer's method furnishes further corroboration of the exceeding close resemblance which these bodies in the fresh state bear to fat, and it is probable that the success of his methods depends upon the fixation of fat-like substances which these bodies contain. Since employing Plimmer's method, Dr. Gaylord has been able to demonstrate in all carcinomata examined the characteristic appearances described by Plimmer. In many cases these bodies are very few in number and only prolonged search will disclose them. Plimmer reports some success in the cultivation of these organisms, and although we have as yet been unable to obtain the organisms by culture, we are at present working upon an indirect method by which we hope we shall ultimately succeed in isolating the organisms in all cases where present.

Our most recent work, by which we are introducing tumors into animals, employing another method, has resulted in the discovery of the fact that by the employment of proper staining methods the parasites found in cancer may be detected in large quantity in the enlarged lymph nodes of the experimental animal. This work is still in progress, and we are not prepared yet to publish it in full; but I wish merely to indicate to you the fact that even slight variation in technique may give totally negative or exceedingly positive results. In one case Dr. Gaylord succeeded in producing a true adenocarcinoma in an animal, by inoculation with fluid from the peritoneal cavity of a man suffering from colloid carcinoma of the omentum.

In this fluid was observed the presence of an organism which apparently belongs to the yeast group, and which we were unable to cultivate. The organism in the original fluid was injected into the jugular vein of a guinea-pig and after three weeks and a half the animal was killed; whereupon, minute nodes of beginning adenocarcinoma of the lung were found. This is the first positive case of this kind, and holds out to us the definite hope that when we are able to understand the nature of

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these organisms we may be able to produce carcinoma in animals with organisms obtained from carcinoma in man. The laboratory is in possession of pathogenic yeasts which various investigators, Sanfelice, Plimmer and others, have isolated from cancer, and we are now carrying on an elaborate investigation in the first steps of which we have been able to confirm all that Plimmer has published. The principal difficulty which we encounter at present is an entire lack of required knowledge, on the part even of botanists, of the nature of the organisms in question. These organisms are exceedingly polymorphic, and it requires prolonged experimentation to determine the relation between certain definite bodies found in the tissue, which are presumably these organisms, and the appearance of the same organisms when grown upon artificial culture media. In this direction our recent experiments are rendering us great aid, and we have been able to confirm the identity of the bodies described by Plimmer and observed by ourselves in the fresh state, with the organisms which Plimmer has been able to cultivate. In his examination of 1,100 tumors Plimmer has been able only in five cases to obtain a culture of the organism upon artificial culture media, indicating that the cultivatability of the organism is exceedingly variable. Therefore, the large number of cases in which we have obtained negative results indicates nothing more than the fruitlessness of attempting to study organisms of unknown habitat by conventional methods. There are certain indications that the various forms of tumor are not produced by one organism, or even necessarily by one class of organisms. This fact I brought prominently before you a year ago, and to-day I am able to give you definite confirmation of the same, in that from one pigmented tumor we have obtained a pure culture of an unknown fungus, which under certain conditions produces a pigment identical in appearance with the pigment found in the tumor. We have likewise been able by special methods to stain the elements of the organism in the tumor. The experimental portion of our work we are not yet prepared to report upon.

In this work we have endeavored—and have succeeded to a limited extent—to arouse the interest and co-operation of the veterinarians, who come into contact with a large amount of interesting material. To the personal interest of Drs. Wende and Zinc, of Buffalo, for instance, we are indebted for some very interesting specimens from animals. Such as these we are always anxious to secure, and consequently, I would appeal through you to them, so far as you have it in your power to spread this request for co-operation.

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THE

WESTERN CLINICAL RECORDER

A BI-MONTHLY PUBLICATION DESIGNED TO FAMILIARIZE THE GENERAL PRACTITIONER WITH THE PRACTICES AND METHODS OBTAINING IN THE LEADING PUBLIC AND PRIVATE HOSPITALS OF THE LAND

CONDUCTED BY

FRED JENNER HODGES, B. Sc., M.D., AND WILLIAM T. RINEHART, M.D.

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IMPORTANT NOTICE.

It is due the Editors of THE RECORDER, no less than their advertising patrons, to state to the readers that this publication solicits and accepts only the advertisements of such articles and preparations as they can honestly, personally recommend to the readers. This is a higher ground than is taken by any other medical publication in the country and means the loss of many remunerative advertising contracts each year, and a fact which the profession, if sincere in its desire to discourage the unethical advertiser, should appreciate and substantially encourage by even more rapidly extending the subscription list of THE RECORDER.

IF YOU SEE IT ADVERTISED IN THE RECORDER, IT'S ALL RIGHT.

Appointment to St. Luke's of Dr. M. L. Harris.

In every large city with which we are acquainted many of the ablest workers in special lines, from their lack of self-assertion, fail to largely

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attract the attention of the general profession (and laity) to themselves, although recognized by the discerning as leaders in professional thought and action. The *urine segregator* of our friend and collaborator, Dr. M. L. Harris, of Chicago, has made his name pretty generally known to the profession during late years, but valuable as this device has proven it is of wholly minor importance compared with the many additions to surgical diagnosis, treatment and technique devised or suggested by Dr. Harris during his fifteen years' service in the Chicago Policlinic.

Very substantial recognition of Dr. Harris' unostentatious labor has recently been extended by his election as one of the attending surgeons to St. Luke's Hospital, Chicago, one of the foremost sectarian institutions of the kind in the West.

The honor could not have been more worthily bestowed, and with this newer and broader opportunity we shall confidently expect even greater things of this tireless worker in the future.

Department of Pediatrics.

With the purpose ever in mind of making THE RECORDER *the useful* periodical for the busy practitioner, the Editors have the pleasure of announcing the inauguration, with the present number, of a department of pediatrics under the able editorship of Dr. Frank X. Walls, of Chicago. Dr. Walls' prominence as a teacher and practitioner, not less than as a popular contributor to the literature of his special work, gives assurance that his department in this publication will contain able and authoritative reviews of the more important articles upon the diseases of children appearing at home and abroad.

Inherited Wealth and Professional Success.

Genuine enthusiasts in the study of medicine are rarely men of large means, and one often hears regret expressed by those ambitious for the advancement of medicine that such is a fact. One of the most frequently advanced arguments favorable to the lengthening of the course of study leading to the medical degree, and consequently increasing the cost of entering upon a medical career, has been that such a course would attract the sons of a wealthier class, who would be in a position to thoroughly prepare themselves.

Carnegie's observations and apothegms are extensively quoted, and none more so than that to the effect that "it is a misfortune for any young man to be born rich." May this not apply to medicine?

Marion Crawford, the eminent novelist, in the course of a recent interview in New York said:

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"What a novelist needs in order to succeed is energy, above all else. But he also needs to be very poor. No man with money will work hard enough when he is young to succeed. He needs to begin early, work hard, and sit many hours in one place. If a man has money he won't sit long in one place."

There are exceptions to every rule, and a few notable ones to this, but the general fact concerning our profession is that few men of independent means study medicine, fewer make anything of a success at it, while such practitioners as later inherit or marry much money immediately "vegetate."

SHALL PATENTED SYNTHETICAL PREPARATIONS BE ADMITTED TO THE UNITED STATES PHARMACOPEIA?

The code of ethics very properly condemns the patenting of medical and surgical appliances by physicians, and this, together with the injurious consequences, both to the health of the people and the purse of the physician, of the use of the so-called patent medicines, has crated a strong dislike on the part of the profession to the idea of patents. For this reason the Pharmacopeia has excluded from its pages many remedies that have been proved by professional experience to have definite therapeutic activities, because they are made by patented processes. Whether this policy shall be continued is a question for the convention that meets in Washington on the second of May to decide. The question is of great interest to the physician, as well as to the pharmacist, and the medical profession through its press and societies should make clear its opinion in the matter.

In this connection it should be borne in mind that the medicines in question are in no sense secret nostrums. The so-called patent medicines are not entitled to that name, because they are secret preparations, while a patented preparation or process must have its formula and methods of manufacture open to the world. It is a notable fact that the number of medicines whose formulæ are protected by patent has greatly decreased within the past twenty years, while the secret remedies protected by copyright have increased.

The reasons for admitting these remedies to the Pharmacopeia seem sufficiently cogent. They are useful remedies whose composition is well known, whose purity can be tested, and whose therapeutic action is uniform. The fact that they are made by a patented process does not affect these qualities any more than a tariff upon opium would affect its action in allaying pain.

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Admission to the Pharmacopeia would fix the position of these remedies by the publication of their exact formulas and methods of preparation, and draw a line between the synthetic remedies whose composition, mode of preparation, and physiologic action are known, and the large number of preparations which come before the medical public with no such credentials, but are announced as coal tar products without any guaranty of definite composition or properties.

The excessive use of these preparations by all classes of physicians, and the fact that they find a place in the works of materia medica show that they have a permanent place in the armamentarium of the physician, and the Pharmacopeia should register the verdict by giving them recognition. J. H. S.

THE PATHOLOGY OF ACUTE ENDOCARDITIS.

The anatomy of this affection differs from that of most infectious processes in that it occurs in a structure normally avascular. The endocardium, like the interior of the vessels, contains no vessels of its own, although lymphatics and nerves are abundant. However, after it has once been the seat of an inflammation, and when granulations have formed, the granulations are supplied with capillaries from the vessels of the deeper structures. Hence any infectious agent must reach the valves from the blood passing over their surfaces, except in the case of new infections of chronic valvular vegetations, when the organisms may enter the vegetations through their new found vessels. The endothelial cells have marked phagocytic powers, and it is perhaps through their action that the bacteria in the blood stream become lodged. But since endocarditis occurs generally at the points where there is the greatest amount of trauma and wear it is much more probable that their lodgement is dependent upon an injury to the endothelium, rendering multiplication of the bacteria possible.

In any event the first change produced is necrosis of the endothelium, and on the necrotic surface fibrin is deposited. The bacteria multiply greatly in the fibrin, and specimens from the vegetations usually show them in enormous numbers. Into the fibrin new formed cells from the underlying connective tissue make their way, capillaries are developed, and ordinary granulation tissue, capped by a layer of fibrin, is formed. Should the necrotic processes exceed the proliferative, perforation of the valves may result. In other words, the changes are the same as in infective endophlebitis or endarteritis.—*Washbourn, Brit. Med. Jour., Nov. 4, 1899.*

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In Osler's 209 cases the location of the lesions was as follows: Mitral alone, 77; aortic alone, 53; aortic and mitral, 41; right side alone, 9; tricuspid, 19; pulmonary, 15.

The lesions resulting are due to: 1, mechanical effect on the valves; 2, toxæmia; 3, emboli, which generally are suppurative and may cause suppurative arteritis and hemorrhage. This last complication was observed in 10% of the Guy's Hospital cases. One of the striking results is hemorrhagic nephritis, probably of toxæmic origin, although mycotic emboli are often present in the glomerular tufts and may be the exciting cause. The secondary suppurations are generally the result of the ulcerative form, seldom occurring in the vegetative form which, as shown by its structure and development, is a more chronic process. —*Harbitz, Deutsche Med. Woch., 1899, No. 8.*

Two classes of acute endocarditis are usually recognized: infectious and non-infectious. *Non-infectious* endocarditis is seen occurring in such chronic diseases as nephritis and carcinoma. In tuberculosis we not infrequently find vegetations, and Harbitz has studied nine such cases. In one the bacilli were found in smears, and in another inoculation caused tuberculosis in a guinea pig, so the endocarditis in tuberculosis is hardly to be classed with the non-infectious variety, as it usually is. Rheumatic endocarditis is also considered in this group, although it is in all its characters infectious, and the same may be said of chorea.

The etiology of the *infectious* variety is varied, and the list of organisms found as the causative agent in endocarditis is constantly growing. Most common are the ordinary pyogenic microbes. In forty-three cases Harbitz found the streptococcus seventeen times, staphylococcus eight times, pneumococcus five times. The staphylococcus produces generally the ulcerative lesions with metastatic suppurations, while the streptococcus endocarditis is oftenest vegetative and suppurative emboli are rare. The pneumococcus is found chiefly in endocarditis accompanying pneumonia. As a rule the organisms can be demonstrated during life by cultures from the blood, especially if large amounts of blood are used in making the cultures.

Many other organisms besides the above common varieties may cause endocarditis. Thayer and Lazear have reported a second case of gonococcal endocarditis (*Jour. of Exper. Med., Vol. IV, No. 1*) in addition to their well known case reported a few years ago. Other observers have also demonstrated the gonococcus in myocarditis. Blum and Escherich (*Centr. f. Bakt., '99, No. 5*) have been able to produce endocarditis in rabbits by intravenous injection of the bacillus pyocyaneus

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accompanied by injury of the aortic valves. They observed a case in a two and one-half months' old child, the blood of which before and after death gave pure cultures of this organism. Four other cases without septicæmia have been observed. M. F. Austin reports in the *Johns Hopkins Hosp. Bull., Oct., 1899,* three cases in which a small bacillus resembling B. Influenza, and presumably that organism, was found abundantly on the valves but was not obtained in cultures. The pseudo-diphtheria bacillus has also been found in the vegetations by two observers (*Preisig, Ung. Med. Presse, 1898, Nos. 10 and 12*). Here the infection atrium was in the tonsils. MacCullum and Hastings have described a new organism, named by them micrococcus zymogenes, in a case of acute aortis endocarditis with septicæmia.—*Centr. f. Bakt., Mar. 28, '99.*

H. GIDEON WELLS.

ASEPSIS AND ANTISEPSIS NOT SYNONYMOUS SURGICALLY.

An editorial writer in *The Medical Fortnightly* makes merry over the circumstance that some "stickler for absolute accuracy" criticised the use of the word *anti*septic where the word *a*septic was clearly meant. He says: "We *have yet to learn* that the confounding of the two has ever been responsible for harm to the human race or has affected the fate of nations and we are inclined to class it with such vexed questions as the century problem." Ignorance of the law—in medicine as elsewhere—excuses no man. The cases of serious, prolonged illness, loss of members and occasionally death which have resulted from failure to comprehend the difference between *a*sepsis and *anti*sepsis are not the ones that get into the medical journals—at least under that title. That they are not understood and that their significance fails to reach the understanding of the practitioner in whose practice they occur is evidenced by the fact that they occur at all. If he realized what he was doing he would not do it.

* * * * * *

The *Railway Surgeon* for January 9th contains a paper read at the meeting of the Big Four surgeons at Cincinnati last November that in this connection is worthy of extended notice, although it does not appear to have been discussed at that meeting.

The whole philosophy of modern surgery and surgical dressing is involved in the proper interpretation of what was really occurring under the observation of the author of the paper and which he regards as "*eczema complicating a wound.*" The essential facts of the history are these:

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Mr. E. P. B., a conductor, aged thirty-eight, a fleshy man, was thrown by a jerk of the car, striking his open hand with his whole weight upon the corner of an open stove door, tearing a deep irregular gash in the outer half of the palm. The wound was carefully cleansed and sterilized, the necessary sutures passed and then dressed with *anti*septic precautions. On the third day the skin for a short distance about the wound was *raised as if blistered* (clearly no eczema. Ed.), and looked angry and red. Irrigated the parts carefully with *bichlorid of mercury* solution, dusted the wound *with iodoform* (homeopathy with a vengeance), put on a dry sterile dressing and prescribed tr. iron and quinin, thinking it might *turn out to be* erysipelas. The following day the dressings were dripping wet with a serous discharge from the wound (?) and the surrounding skin. On removing the dressing I found to my surprise that the wound proper presented a healthy appearance, but that the vesication had extended in all directions until it had involved the greater portion of the palmar surface of the hand. I supposed that it was possibly due to the bichlorid of mercury or iodoform, and so used simply sterilized water and *aristol* instead of the iodoform and ordered him to return that evening. On his return I found the dressing as wet as it was the previous visit and that the blistered surface had extended still further.

This sort of thing was kept up two days longer, during which time "the face, breast and both arms presented a deep red, swollen appearance. The original wound was looking quite well, except that it was also discharging serum in abundance, but there was no ulceration or bad odor present. Throughout this experience there were attacks of intense itching in the affected parts, including the arms and face, which were not yet blistered." Had the urine been noted at this time it would have been found scanty, high colored and probably containing considerable albumin. At this juncture the doctor states:

It now came to my mind that two years before I had treated this patient for a severe and obstinate form of chronic eczema rubrum of both legs and arms. Could it be that this old disease had returned and implanted itself on this fresh wound? Acting on this suggestion I again washed the wound with sterilized water, then dusted it and the blistered parts freely with subnitrate of bismuth and dressed it with vaseline, calomel and Venice turpentine ointment and exchanged the tincture of iron for Fowler's solution. Under this course of treatment the daily advance of the vesication and the itching began to diminish and in three days were entirely stopped, and in due time the hand and forearm had new skin and the wound was healed.

In his introduction the author briefly considers—but dismisses—drug irritations as a possible explanation of this and similar cases, and thereby loses the educational possibilities of his patient's misfortune. We have been obliged to treat *scores* of cases like that related. While it is true that there are marked variations in individual susceptibility to any irritant, it is the *irritant* after all which is the active factor in the disaster. Taking the history as it stands, admitting that the wound was "carefully cleaned and *sterilized,*" why should an "*anti*septic dressing have been applied?

* * * * * *

Surgical experience *gained in a library* may authorize the use of the words as synonyms, but every surgeon who has mastered the principles of his art knows that such is not, can not be the case. This is not

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a trivial matter, a hair-splitting quibble, but a question of fundamental import. So long as these terms are looked upon as in any sense synonymous, just so long will surgical consultants and hospital attendants continue to find prettily sutured wounds full of foreign bodies, necrotic tissue and decomposing blood clots coated over with iodoform and other supposed *anti*septics. The opportunities for *a*sepsis, the true surgery, thrown aside for needless and useless *anti*sepsis.

* * * * * *

No true surgeon can agree with *The Fortnightly* that the word "*antiseptic* gives us a feeling of security beyond that conveyed by *aseptic.*" On the contrary, an "aseptic" condition is the *summum bonum* of good surgery. When a surgeon knows that his operation wounds are *a*septic and that he can maintain them in that condition through such subsequent dressings as may be necessary, there is left nothing to be desired.

* * * * * *

If authorities are needed, Gerster, than whom the profession affords none higher in this particular, thus defines the terms beyond cavil (*Aseptic and Antiseptic Surgery, 1888, p. 27*):

"The aseptic discipline is a purely preventative one. Antiseptic treatment, on the other hand, refers to such wounds as have become the seat of infection, causing inflammation, suppuration or the higher forms of sepsis—phlegmon and gangrene. The object of the antiseptic treatment is the limiting and elimination of established (not potential—Ed.) septic processes by drainage and disinfection. It is also preventative, but in a narrower sense than the aseptic method. There (asepticism) *all* mischief is prevented from the onset (by cleanliness); here (*anti*septic treatment) further extension of *present* mischief is sought to be checked.

* * * * * *

A substance is *a*septic when free from septic bacteria, *anti*septic when capable of destroying or inhibiting the growth of septic bacteria. There are but scant variations from such a use of these terms among working surgeons of large experience and it is the usage among such which must be accepted as the *highest* authority.

* * * * * *

The practical aspect of the matter is this. How may the unthinking practitioner be induced to leave *anti*septics off his *a*septic wounds? The shortest route to a man's understanding is through his pocket book and it may take a few inevitable malpractice suits to make him understand the difference between asepsis and antisepsis; that no quantity of antiseptic drugs applied to an unclean wound will condone the sin of its uncleanliness; that they are worse than useless upon a clean wound.

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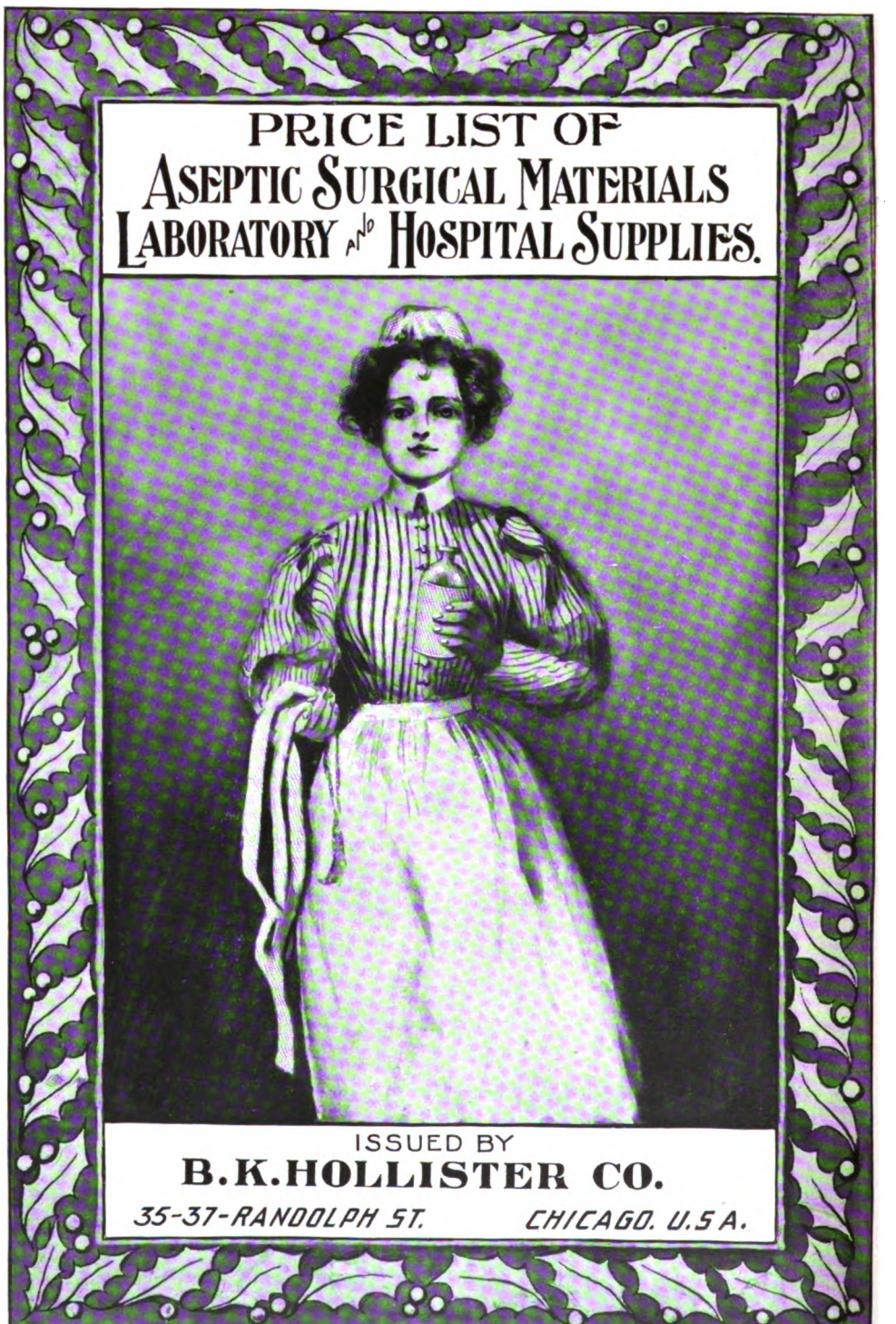

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Value of Buttermilk.

Buttermilk is acid from the decomposition of milk sugar into lactic acid. It contains less fat than whole milk and coagulates upon boiling. The casein is broken up very finely in the process of churning.

Buttermilk decomposes rapidly upon standing and should be drunk when fresh. It is of considerable nutritive value, especially in catarrhal gastritis and in atrophy of the gastric tubules.—*W. G. Thompson.*

Latent Gastric Cancer.

Osler contributes a valuable paper under this title to the *Philadelphia Med Jour.* in the course of which he states that in 150 consecutive cases of gastric cancer at Johns Hopkins Hospital, seven were latent, i. e., not discovered or *suspected* until revealed by autopsy. In such cases the disease is usually seen in the aged and gives rise to few or perhaps no symptoms. When present symptoms are only those of a mild dyspepsia. In obscure cases of dyspepsia accompanied by emaciation, even in the absence of the other symptoms usually looked for, latent gastric cancer may be suspected.

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Diagnosis of Perforation of Gastric Ulcer.

M. S. Tinker (*Phila. Med. Jr.*) notes the following points in the diagnosis of perforating gastric ulcer:

1. Previous history of gastric ulcer or of chronic gastric catarrh.
2. Sudden severe pain in the epigastrium or left hypochondrium.
3. Vomiting and collapse very frequently present.
4. Abdomen scaphoid and rigid.
5. Tenderness.

The symptoms of peritonitis appear after a varying interval after the perforation occurs, and when they are established a diagnosis of the stomach perforation may be impossible.

Empyema of Infants.

Practically all pleural effusions in infancy are purulent from the beginning, or speedily become so. The condition as it presents itself in infants is very frequently mistaken for pneumonia. The rational signs are the same as in pneumonia and the physical signs cannot alone be depended upon to make a diagnosis.

Exploratory puncture is called for in every case in which with the rational signs of lung disease there is found marked dullness or flatness over any part of the lung, especially if accompanied by diminution or absence of voice or respiratory sounds over the area or by displacement of the heart.—*David Bovaird.*

Acute Dilatation of the Stomach.

One of the most valuable in the series of papers upon the stomach recently published by the *Phila. Med. Journal* was by H. W. Bettmann, whose exhaustive paper upon "Gastroptosis" was abstracted in THE RECORDER for May, 1899. This author regards as causes of acute gastric dilatation:

1. Trauma, either of the gastric wall or of the gastric nerves.
2. Overeating.
3. Acute indigestion.
4. Sudden obstruction of the pylorus or duodenum.
5. Cause unknown, probably of toxic nature, producing paralysis of the nerves supplying the stomach.

The onset is sudden and violent. Vomit is profuse and intractable, large amounts of greenish fluid being ejected. The patient is soon collapsed and may die in a few days.

Treatment should be supportive and include the early use of the stomach tube and rectal alimentation. Narcotics are pernicious.

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Organotherapy.

Suprarenal extract is useful in Addison's disease. In a 10% watery solution it is used locally as a powerful vasoconstrictor, especially in the upper air passages. It is said to be a powerful heart tonic, useful in Basedow's disease.

Ovarian extract is used when the artificial production of the menopause by oöphorectomy causes unpleasant nervous symptoms and in delayed and scanty menstruation.

Mammary gland extract is used in uterine fibroids, menorrhagia, and metrorrhagia.

Parotid extract is almost a specific for dysmenorrhea.

Tyroid extract is used in myxedema, cretinism, psoriasis, certain forms of goiter and obesity.

Thymus extract is indicated in developmental diseases like rachitis, exophthalmos and in certain of the anemias.

Treatment of Pneumonia.

The Cyclopædia of Practical Medicine thus summarizes the recently published views upon treatment of pneumonia.

R. K. Macalester considers cold water compresses the best treatment. He uses three folds of linen cut to fit the chest and wrung out of water at 60° F.

J. H. Musser believes in cupping freely in the morning, in the evening and in the day following the onset, over the lung areas involved. He uses compresses wrung out of ice water and large quantities of water internally. By the latter preventing the development of the typhoid state. During the course of the disease he uses strychnin and nitroglycerin, especially in the latter stages.

C. G. Stockton considers cardiac failure and pulmonary œdema the two chief dangers of the disease and to combat them he uses strychnin hypodermically—1-10 to 1-20 gr.—which if it produce much excitement will require a little opium.

Dr. Cassoute's method of treatment is based upon the antiseptic theory. It is said to rapidly reduce temperature and save life and consists in giving creasotal. Adults get ʒij ss, twenty-four hours divided in four doses. This is diminished one-half only when the temperature reaches the normal, which amount is continued until all physical signs disappear. If the temperature rises again the dose is increased. The dose for children under one year is gr. iv-xv; one to four years, gr. xv-xlv and from six to ten years gr. lx to lxxx.

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SURGERY.

UNDER THE CHARGE OF WILLIAM T. RINEHART, M.D., AND FRED J. HODGES, B.Sc., M.D.

Depilatory Action of X-ray.

Wood reports in the *Lancet* the results of his experiments with the X-ray as a means of removing superfluous hair from women's faces. Those surfaces exposed during thirty to forty sittings seem to be permanently freed from hair; those exposed in the neighborhood of twenty times were partially freed and responded more easily to the ordinary treatment, while those subjected to the rays during but ten or twelve sittings seem to be uninfluenced.

Freund (*Wiener Klin. Woch.*) found that the hair fell out after seventeen to twenty-four sittings, leaving the surface bare, but the result was not permanent, as after two or three months there was a decided tendency for the hair to return. Three or four exposures once in six weeks prevented the return of the hair.

Adhesive Strap Compression for Acute Synovitis.

Hoffmann, of St. Louis, presents (*N. Y. Med. Jr., Jan. 27*), as an innovation, the old plan of treating synovitis by compression effected by strips of adhesive plaster. The plan is a valuable one if for any reason aspiration is contraindicated, but its results from the point of time or thoroughness are not to be compared with those of aspiration as described in the RECORDER for January.

The history of one of his cases will explain this method of procedure:

A carpenter, æt. thirty-seven, struck his knee against the bench, hurting but not disabling himself. Next morning it is swollen; by the middle of the afternoon he can no longer bear his weight upon it. Next day (48 hours) joint swollen, hot and exquisitely sensitive; flexed at an angle of 135.

Treatment.—A pad of cotton was placed in the popliteal space and the parts were covered with a close-fitting stocking-leg. Over this stocking protection the adhesive plaster was applied as follows: A strip about an inch wide and thirty inches long was made to encircle the leg about six inches below the patella and carried upward until the somewhat conical shape of the calf caused it to materially alter its course. Another strip was then applied overlapping the first; above this another and another, and so on, ascending the leg, over the patella, and up the thigh to about six inches above the upper margin of the patella. Each strip of plaster was drawn very tight, so that the joint and several inches of both the thigh and leg were incased in a firm adhesive-plaster support, which exerted considerable pressure on all sides. A muslin bandage was applied over all to firmly press the layers of plaster together.

The patient winced considerably during the application of the dressing, but after the same was once firmly applied the change was almost magical. The pain was entirely relieved and a sense of security was imparted to the joint. After

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some hesitation he was induced to use the limb, and, to his surprise, he could walk without pain and with only such lameness as was caused by the flexed position of the limb and the restriction of the bandage.

Dressings changed in twenty-four hours, and at the end of the third, tenth, and sixteenth days. Discharged well on twenty-second day. At the end of first twenty-four hours swelling, which had been two and one-fourth inches, had subsided to one inch and the leg could be fully extended without pain; so he began work and continued at it comfortably during the subsequent treatment.

How Surgery Became a Profession.

Mr. D'Arcy Power clearly sketches the origin and career of those associations which controlled, or attempted to control, the education of surgeons and the practice of surgery in the past and gives some account of the lives of eminent surgeons from the fifteenth century onwards. A Guild of Surgeons, distinct from the Barbers, existed in London before 1369, but it was not until 1423 that an attempt was made to organize medicine and surgery by the formation of a Faculty of Physicians and Surgeons independent of the already existing Company of Barber-Surgeons. The attempt seems to have been well directed and the scheme well arranged, but for some reason that is not known the association came to an end after a very few years. Perhaps it was too ambitious. It had, or was to have had, three houses—one for the surgeons, one for the physicians, and one in common "fitted with desks for examinations and disputations." Its chief officer was a physician, the "Rector of Medicine." The barbers evidently opposed the new association, which seems to have tried to interfere with their surgical privileges. Soon after this a Fellowship of Surgeons was established, which obtained a charter of incorporation and a grant of arms, but was amalgamated with the barbers in 1540. At about this time an Act of Parliament was passed throwing open the practice of surgery to all and sundry. It may well be believed that surgery was then at a low ebb. The surgeons long struggled to escape from the thrall of the physicians, who treated them as mere handicraftsmen whose business it was to carry out their directions, and they strove to prevent their giving internal remedies, and in 1632 even obtained an order in council forbidding major operations except in the presence of a learned physician. Until surgery was freed from the barbers on the one hand, and from the physicians on the other, the social status of the surgeon must needs have been low. Men of education did not often choose surgery as a calling. Guthrie describes apprentices as often not having "that preliminary education that would qualify them to take a proper and respectable place in their profession." Credit for having made an attempt to set up a standard of general culture belongs to the Society of Apothecaries, but it was long before the College of Sur-

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geons followed the excellent example set them. The movement thus started by the Apothecaries' Act of 1815 has not yet been carried far enough.—*British Med. Jr.*

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF H. GIDEON WELLS, A.B., M.D.
Fellow in Pathology, Rush Medical College, Chicago.

Gout Produced Experimentally.

Barnyard fowls can be made to present typical manifestations of gout when given certain substances, as chromic acid, oxalic acid, carbolic acid, corrosive sublimate, and aceton. Their nitrogenous waste is eliminated in the form of uric acid, and when the amount of nitrogenous food is in excess the urates accumulate in the blood and tissues. Kionka fed well-developed and healthy hens on horseflesh freed from fat. In about three or four months symptoms began to appear. Some of the fowls showed the chief changes in the joints, which were greatly enlarged, and contained deposits of urate crystals. In other visceral changes were more prominent. Nearly all developed a gouty kidney, with areas of extensive round cell infiltration and some loss and necrosis of the secreting epithelium. When eggshells, for which the hens were very greedy, were given, the amount of uric acid eliminated was diminished, while nitrogen was eliminated in other forms in increased amounts.—*Berl. klin. Wochenschr., Jan. 1, 1900.*

Mucinæmia and Its Relation to Thyroid Function.

The swelling and thickening of the skin in myxœdema is due to a myxomatous change in the subcutaneous connective tissue. Not only is mucin present in the intercellular substance of this tissue, but Horsley has demonstrated its presence in the blood in the subjects of myxœdema. To ascertain the relation, if any, between the thyroid gland and this mucinæmia, Levin (*Medical Record, Feb. 3, 1900*) has tried the effect of intravenous injections of mucin solution in thyroidetomized animals. Rabbits were used, as they are able to live after the removal of their thyroids. Of nine such rabbits in which an artificial mucinæmia was produced, all but one died, while none of the control animals became seriously affected. Hence it is concluded that the thyroid gland is capable of either destroying or neutralizing the toxic effects of mucin when it is present in the blood. The chief results of mucinæmia are due to a fall of blood pressure from direct depression of the center in the medulla.

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Are the Neurone Theory and Nissl's Staining Methods Fallacious?

The "neurone theory" is founded on the supposition that all nerve cells are entirely independent structures, each cell existing without union with any other cell and communicating only through contact between the brush-like termination of the processes of one and the body of another. Martin Fischer (*Jour. of Exper. Med., Vol. IV, Nos. 5, 6*) opposes this idea by demonstrating specimens showing anastamosis of different cells, sometimes as many as five cells being found united by their processes. He also makes the claim that the Nissl bodies, concerning which so much is now found in all articles on the nervous system, are merely artifacts depending on the methods used in differentiating the stain. (*Proceedings of the Chicago Path. Society, 1899.*) These Nissl bodies are granular masses, taking the methylene blue when stained according to Nissl's method, and collected particularly about the nucleus of the ganglion cells. Fischer bases his statement on the observation that the stain may be washed completely out of the cells with alcohol, and that on restaining the Nissl bodies do not appear in the same arrangement that they before occupied. As much that has been written concerning the changes in nerve cells in pathologic conditions is based upon unusual appearances in the Nissl bodies, this observation will, if corroborated, destroy the value of such studies.

Concerning Experimental Production of Carcinoma.

A short time ago H. Lambert Lack announced that he has succeeded in producing experimentally a general carcinosis in a rabbit (*Jour. of Path. and Bacteriol., Aug., '99*). This attracted much attention from medical publications, but most unfortunately the lay press also took the opportunity to announce that at last the cause of cancer had been discovered, and that its cure would soon be disclosed. Because of this publicity this communication is entitled to a critical discussion. Lack's experiment consisted of cutting in two the ovaries of two living rabbits, scraping the cut surfaces and allowing the milky fluid so obtained to be diffused through the peritoneal cavity. The theory upon which this experiment was based is that carcinoma is due to the growth of *normal* epithelium within the lymphatic spaces. One of the animals died in forty-eight hours, the other lived and after a year began to lose weight and was killed. On autopsy was found a general dissemination of a growth, in structure corresponding to an alviolar carcinoma. Lack's report is based upon this solitary case. Besides the fact of its being an isolated case, the weak point in the demonstration lies in the presence

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of a tumor growth in the uterus of the same structure as the metastatic growths, and Lack appears to have overlooked the possibility, or better, the probability, that this may have been the origin of the entire carcinomatous process. S. G. Shattuck (*Lancet, Jan. 20, 1900*) has demonstrated a case of primary carcinoma of the uterus of a rabbit, so establishing the occurrence of malignant neoplasia in these animals. Therefore, while the experiment may have been successful in producing carcinoma by causing normal epithelium to grow in the lymphatic spaces, it must be considered as without significance until corroborated.

OBSTETRICS.

IN CHARGE OF J. B. DeLEE, M.D.

Professor of Obstetrics in the Northwestern University Medical School; Attending Obstetrician to Mercy, Wesley and Provident Hospitals; Chief Obstetrician to the Chicago Lying-in Hospital and Dispensary.

Chicago, Ill.

Pressure Treatment of Retroversion of the Gravid Uterus.

A. Funke (*Centralblatt für Gynækologie,* page 217, February, 1900,) extols the use of continued pressure by means of a colpeurynter placed in the vagina and filled with mercury, in the treatment of incarcerated retroversion of the gravid uterus. Patient is placed in bed with hips raised. After the rubber bag is inserted mercury or fine shot is allowed to distend the vagina, and left in, for 30 to 60 minutes. The result is, that the uterus slowly leaves the pelvis, an effect due to the even mechanical pressure exerted by the shot or the mercury. Sometimes a little blood appears on the bag when removed, especially in primipara or when the bag is used in mulliparous women. He recommends this method of treatment in other affections, Douglasitis, adnexa tumors and inflammations, also dyspareunia.

The Mechanical Treatment of Post Partum Hemorrhages.

Schwertassek (*Centralblatt für Gynækologie,* page 199, February, 1900,) tells of a case where he employed the procedure recommended by Arendt for the arrest of obstinate post partum hemorrhages. This method consists in the application of a muzeux or vulsellum forceps on each lip of the cervix and drawing the cervix and the uterus down till the os is visible in the vulva. The blood vessels and broad ligaments are thereby stretched, twisted tight, and compressed, thus stopping the hmorrhage. Schwertassek describes the case of a patient, six and one-half months pregnant, having had numerous severe hemorrhages before labor, and continued hemorrhage during labor, for which the uterus and

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the vagina were thoroughly packed. The blood oozed through this packing and the patient almost died from syncope. The lips of the cervix were then seized with vulsella and the uterus strongly drawn upon, which stopped the hemorrhage, but as soon as the traction was released the oozing recommenced. The vulsella were tied by a string to a weight of two pounds hung over a chair and allowed thus to remain for eight or ten hours. The next morning the forceps were removed; no hemorrhage; recovery. There was slight pressure necrosis of the cervix where it was grasped by the forceps.

(The Editor has used this method several times, once with marked success. It was in a case and under circumstances that indicated prompt tamponing of the uterus, but the materials were not at hand for this. The uterus was therefore drawn down by means of vulsellum forceps and the vagina packed all around the shanks of the instruments with cotton pledgets. The hemorrhage, which had been really severe, ceased at once, and in five minutes the forceps could be safely removed. The method is simple enough and is certainly safe in gentle hands.)

Strict Indications for Obstetric Operations.

Van Ramdohr (*American Gynæcological and Obstetrical Journal,* February, 1900, page 112), in a paper read before the New York Obstetrical Society in December, makes some very pertinent remarks with reference to strictness in specifying indications for obstetrical operations. He claims that very often operations on women in labor are performed for no other reason than to demonstrate the application of instruments or to save the woman suffering or to save the physician's time. His remarks were called out by the statement in a previous meeting of the Society that in a certain hospital in New York rubber bag dilators were used in an unusually large percentage of cases. He claims that while it may be possible for an expert obstetrician to dilate the cervix, by the hand, or incisions, with safety to the patient, the general practitioner would get better results by sitting many hours at the bedside awaiting natural dilatation.

Again, the expert can perform symphysiotomy and Cæsarian operation, while the general practitioner, by following his teachings, would lose a large number of mothers and babies. Lectures intended for postgraduates should differ from lectures given undergraduates, and operations discussed and taught by specialists cannot always be properly advised to general practitioners and students. In New York City he has

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met with many cases of puerperal fever brought on by too frequent and injudicious operations.

He puts all indications under this general head: Whenever the mother or child are threatened with danger, interference is necessary and indicated. Under all other conditions operations are to be avoided wherever possible.

The usual mistake in the beginning of labor is the too early dilatation of the cervix. No interference should be undertaken unless there is a clean cut indication. The symptoms of an hysterical patient, or the pleadings of the family, or the impatience of the physician, ought never to be taken into consideration. Artificial dilatation is necessary only if the delivery is made desirable by the condition of the mother or the child, and is to follow immediately.

Forceps ought never to be employed except by an expert unless the head is engaged in the pelvis. Craniotomy nowadays is performed only on a dead child, and is certainly to be preferred to an attempted version late in labor or to a symphysiotomy under unfavorable surroundings. Elective Cæsarian section is only to be performed by an expert laparotomist under the very best conditions.

In the discussion which followed, J. Clifton Edgar said that he did not think the tendency of the day was toward interference, but rather that it was toward conservatism; that at the beginning of the present decade, forceps were used much more frequently than they are now. Dr. Bach McEmmet said that the evils referred to by the author were difficult to cure, being due to a lack of thorough obstetric practical training, and that a fruitful source of error is the fact that the general practitioner feels competent to take charge himself of almost any case of delivery, and often attempts to do a capital obstetric operation where he would hesitate to perform a much less serious surgical operation.

Dr. E. A. Tucker, replying to the insinuation that in a certain hospital in New York obstetric operations were performed without strict indication, for the benefit of the students, denied it in toto. He said that the work there sometimes showed 40 per cent of the cases required obstetric operation, mostly minor operations. This is explained by the fact that many cases are brought to the hospital because of their abnormalities; hospital statistics, therefore, being no index to outside statistics.

(The Editor has found that in private practice the indications for operative interference in head labors arise much more frequently than in institutional practice. There are many reasons for this which cannot

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here be considered. Therefore, his percentage of forceps deliveries in private practice is somewhat higher than in hospital and dispensary practice. On the other hand, abnormal positions of the fœtus, and accidents due to diseases of the uterus and appendages, are much less common in private practice than in the other. However, he agrees with Van Ramdohr that the indication for interference must always be a strict, scientific and classical one, and only when the accoucheur operates in fulfillment of such indication can he feel free from blame in the event of an untoward accident.)

LARYNGOLOGY AND RHINOLOGY.

UNDER THE CHARGE OF FRED C. ROGERS, M.D.
Professor of Laryngology in the Milwaukee Medical College, Milwaukee, Wis.

Formalin in the Treatment of Atrophic Rhinitis.

After thorough cleansing with an alkaline solution Bronner syringes the nasal fossæ with a 1 to 1,000 or 1 to 2,000 solution of formaline in water, or sprays it with a 1 to 500 or 1 to 1,000 solution of the same with the addition of a small amount of glycerine. This he repeats four times a day.—*Jour. Laryngol., Rhinol., Otol., Oct., 1899.*

Hysterical Larynx.

Hopkins speaks of a girl of fifteen years who developed marked symptoms of laryngeal hysteria following an attack of whooping cough. Noisy respiration was both inspiratory and expiratory and was preceded by a burning feeling in the throat. A speedy cure was obtained after the introduction of an intubation tube.—*N. Y. Med. Jour., Dec. 2,* 1899.

Treatment of Peri-Tonsillar Abscess.

Dr. G. A. Leeland, of Boston, recommends the following: Make a long vertical incision through the tonsil, and then search for pus pockets with the sterilized finger. He claims for this method these advantages: It is not dangerous; the abscess is drained from the bottom; recovery is prompt and there are no relapses. The patient is able to swallow solid food in twelve hours. Where the wound heals slowly it should be treated with a combination of iodine and glycerine.

Varieties of Pharyngeal Adenoids.

We find two varieties, the soft and spongy of early childhood and the hard and fibrous of adolescents. The symptoms in both are the same, i. e., blank expression of the face, nasal obstruction, cough, fre-

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quent attacks of cold in the head, disturbed sleep, muffled voice, chest deformity, mental weakness, etc.—*Pynchon, Med. Monograph, Feb.,* '99.

Sarcoma of the Nasal Septum.

Clark makes a review of the literature with notes on over seventy cases, including one of his own. Twenty-four of the cases were operated upon, four only of them surviving more than twelve months. Radical treatment only is admissible. Early removal of the tumor with a wide margin of healthy tissue is advocated when the patient comes from a distance. If at home and the case can be watched the snare or curette may be tried.—*N. Y. Med. Journal, Jan. 7,* '99.

A Case of Carcinoma of the Nasal Passages.

A patient fifty-one years of age had had mucous polypi removed from the nose at regular and frequent intervals for thirty-three years by different physicians. During the six months immediately preceding his visit to Goodale the polypi had grown firmer and more dense and their removal was attended with considerable hemorrhage. Examination revealed several mucous polypi in the left fossa, together with a pale red mass the size of an almond, which apparently sprang from the infundibulum. It was of firm consistence and attached to both the septum and the outer wall of the nasal passage. The growth was removed with a cold wire snare with but moderate hemorrhage. The microscope showed the tumor to be a carcinoma. During the next few months a large amount of carcinomatous tissue was removed intranasally. Recurrence was rapid, with loss of flesh and strength and severe exophthalmos, with a fatal termination fifteen months after malignancy set in.—*Jour. Am. Med. Assn., Feb. 3, 1900.*

Electricity in Diseases of the Nose and Throat.

Particular stress is laid on the galvanic and Faradic currents. The writer says that this department of electro-therapeutics has not been developed as much as its importance deserves and looks for great developments in the future. As an agent for influencing vascular changes in the various nasal disorders it is of great value. It possesses a wonderfully stimulating effect in atrophic rhinitis and is considered by the writer superior to all other methods except cupric electrolysis. In congested conditions of the nasal mucous membrane a mild galvanic current stimulates the circulation by its tonic effect on the vaso-motor nerves and is followed by a return to the normal condition with restored

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potency of the fossæ, rendering galvano-cautery and tissue destruction unnecessary. Electrolysis applied to fibroid tumors in the nose and throat promises much as the tendency of the growth to return appears to be lessened after its dissolution by this method. As an agent for generating power to run motors for nasal trephines and for vibratory massage, for illuminating and cautery purposes it is still unexcelled. The article concludes with an appeal for the more careful study of electro-therapeutics and electro-physics.—*Scheppegrell, The Jour. of the A. M. A., Feb. 3, 1900.*

MEDICAL CHEMISTRY AND TOXICOLOGY.

IN CHARGE OF J. H. SALISBURY, M.D.
Asst. Professor of Chemistry in Rush Medical College, Chicago, Ill.

Some Coloring Matters of Urine.

Closely related to phenol is another aromatic compound which is of the greatest physiological importance, viz.: indol. The formula of indol is C_8H_7N. It may be represented as $C_6H_4{}^{CH}_{NH}CH$. This substance is found in the intestine, where it is the result of putrefactive changes in the proteid food. As it contains N and also a radicle of the aliphatic series as well as a benzene residue C_6H_4, it stands nearer to the proteid molecule than phenol. It is accompanied by skatol, which is closely related to indol, being in fact methyl indol $C_6H_4{}^{CH}_{NCH}CH$. Skatol has a very unpleasant odor, being one of the substances that gives the odor to feces. The indol and skatol of the intestinal contents are to a considerable extent absorbed from the intestine. This probably takes place largely in the large intestine, and is increased by the prolonged stay of the feces in the intestine, as in cases of constipation. When, however, the movement of feces in the small intestine is checked, as by strangulation, or ileus, absorption takes place from the small intestine, and probably in greater degree than from the large. The absorbed indol undergoes oxidation and becomes converted into indoxyl $C_6H_4{}^{COH}_{NH}CH$. Skatol when absorbed is oxidized in a similar way to the analagous compound skatoxyl $C_6H_4{}^{CH_2}_{NCH_3}CO$. These compounds combine with sulphates to form aromatic sulphates, of which potassium-indoxyl sulphate $C_6H_4{}^{CO\,SO_2}_{NH\,CH}OK$ is well known under the name of indican. It is not the same as vegetable indican, but when heated or oxidized is converted into indigo blue. It is by means of this reaction

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that we recognize indican in urine. The best means of testing for it consists in mixing 10 cc. of the urine with an equal volume of fuming hydrochloric acid containing 0.4 per cent of ferric chloride. The mixture can be made extemporaneously by adding to 10 cc. of the hydrochloric acid three or four drops of ferric chloride solution. This method is much to be preferred to the use of chloride of lime or hydrogen dioxide, as there is danger when these are used of bleaching the color by excess. The mixture made as above described is shaken with one or two cc. of chlorofrom and the tube set aside for the chlorofrom to settle, when a blue color will be imparted to the chloroform if the urine contains indican. The chloroform should not be allowed to form an emulsion, as that will obscure the blue color. An emulsion thus formed may be broken up by gently heating the chloroform, or by filtering through a dry filter. The clinical significance of the indicanuria has been well stated by Dr. Wells in a recent number of the CLINICAL RECORDER. The chief conditions in which it occurs are: Obstruction to the movement of feces in the intestine, as constipation, intestinal obstruction, strangulated hernia; conditions favoring intestinal putrefaction, as gastric or intestinal cancer, absence of hydrochloric acid from the gastric juice, and large collections of pus, such as empyema, suppurative peritonitis, etc.

While the presence of indican cannot be taken as an unmistakable evidence of any disease, it is an evidence of the absorption of poisonous products from some source and presumably from the intestinal canal. The intensity of the reaction may be taken as a measure to a certain extent of the amount of absorption going on in the system. A serviceable method of estimation of the amount of indican is much to be desired, but has not yet been furnished by chemists. The intensity of the color reaction may be made to give an approximate estimation. In order to make this as accurate as possible a definite amount of urine should be taken and extracted two or three times with chloroform, after mixing with fuming HCl and ferric chloride, and the different portions of chloroform filtered through a dry filter and united. They may then be placed in a test tube and compared with a solution of indigo or other blue coloring matter of known strength.

Another form of coloring matter that should be noticed in this connection is the coloring matter of bile. That the presence of this in urine is evidence of absorption from the bile ducts is well known. It was formerly taught that a form of jaundice existed in which biliary coloring matter was directly formed from the coloring matter of the

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blood, but this is very improbable, and the occurrenc of a hematogenous jaundice is denied by pathologists. The examination of the urine for biliary coloring matter is very simple. The most commonly used test is Gmelin's. This is conveniently performed by letting one or two c. c. of nitric acid containing nitrous acid (nitric acid that has become yellow or red by exposure to light) run under the urine in a test tube. If bile is present a play of colors appears, of which green is the initial and most characteristic. This appears at the junction of the nitric acid with the urine and gradually rises in the tube, its place being taken successively by blue, purple, red, and yellow. The green color is always uppermost. It is singular that some of the text-books on urinalysis state the order of these colors from below upward, as green, blue, violet, red, etc. It is of great importance to note the position of the green tint, as a green tint often occurs in the nitric acid, which is not characteristic of bile, but is probably due to the blue color of indican mingling with the yellow of the nitric acid. To fix the position of the green its relation to the normal coloring matter of the urine should be noted. When nitric acid is added to normal urine a red line appears, due to the intensification of the natural coloring matter of the urine by the action of the acid. The green which indicates bile will be found in the urine above this. At times the action of nitric acid will bring out a transient green tint which soon fades and is not succeeded by the characteristic play of colors. This color is not due to bile, but is probably due to indican, as it has been observed in urine giving the reaction for indican.

Hammersten has recently published a modification of this test by which it becomes much more delicate. He mixes a 25 per cent solution of HCl with a 25 per cent solution of HNO_3 in the proportion of 1 of HNO_3 to 19 of HCl and allows the mixture to stand for twenty-four hours.

The freshly prepared reagent is inactive. One c. c. of this reagent is added to four of alcohol and to two c. c. of this mixture a few drops of the urine are added. If bile is present, a green color results. By successive additions of the acid mixture without more alcohol, blue green, indigo blue, violet, and reddish yellow tints appear. This test will detect one part of bile pigments in 500,000 parts of urine.

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PEDIATRICS.

IN CHARGE OF FRANK X. WALLS, M.D.
Clinical Professor of Diseases of Children Northwestern University Medical School.
Chicago, Ill.

Appendicitis in Children.

In the course of a clinical lecture delivered at Hôtel Dieu, Paris, Dieulafoy calls attention to the "treacherous calms" in appendicitis; apparent calms that occur during the course of the disease, frequently at the time of menacing accidents. A number of incidents are related, among them the following:

A girl of ten and a half years was taken suddenly sick with vomiting, pain in the epigastrium and the scapular region. Examination revealed tenderness at McBurney's point, abdomen slightly distended, no fever. Patient was treated with ice and opium and the condition remained fair until the fourth day, when vomiting accompanied by severe chill, exacerbation of pain in right iliac region, painful distension of the abdomen and muscular rigidity, pulse 120, temperature 39.3°C. Two hours later there was a general amelioration of the symptoms and the child began to play in bed. Examination showed the tongue a little white but moist, pain in right shoulder persists, abdomen soft without distension, pressure shows appendicular region a trifle sensitive and reveals slight muscular tension. The child was happy, wanted to eat, passed some gas from the bowel, and had an apparently normal bowel movement. The temperature was still elevated and the pulse 110. These two symptoms so discordant with the general amelioration were considered as demanding immediate operation.

Operation revealed the abdomen filled with a turbid, serous fluid. The appendix lay behind the cecum and ascended toward the liver. It was enormously swollen, entirely gangrenous and perforated in two places. The appendix was resected, the peritoneal cavity irrigated with hot sterile water and closed without drainage. Recovery.

Dieulafoy considers that it is difficult, if not impossible, to tell at what time peritonitis succeeds an appendicitis. The symptoms of appendicitis and peritonitis are similar. The pain, vomiting, muscular rigidity and state of the fever and pulse, constipation and abdominal tympany; all of these symptoms may exist with or without peritonitis. The involvement of the peritoneum may succeed an appendicitis without the development of any new symptoms; it may even coincide with an apparent amelioration of the state of the patient, with a treacherous calm. The differentiation between the treacherous calms and true amelioration is that in the latter there is no discordance in the improvement of the different symptoms. The pulse, the temperature, the tympany and pain disappear gradually and in equal degree. In the former the temperature falls somewhat, but the pulse remains small and fast at 90, 100, 120. The abdominal pain is relieved spontaneously or under the influence of ice or morphia, but the abdomen remains tender and tympany persists.

The author considers that appendicitis occurs when, from whatever

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cause; the cavity of the appendix becomes shut off from the intestinal tract and converted into a "closed cavity." In the closed cavity of the appendix the micro-organisms (colon group), normally inert in the intestinal canal, largely increase in virulence.

The ways in which the appendix may become converted into a "closed cavity" may be grouped thus: (1) Calculous appendicitis, that likened to renal, vesical or biliary lithiasis; (2) torsion, a twisting or kinking of the appendix; (3) chronic sclerotic changes succeeding an acute inflammation. He points to the analogy in the pathogenesis between appendicitis and acute middle ear disease following occlusion of the Eustachian tube. Dieulafoy does not consider there is any medical treatment for appendicitis. He concludes his lecture as follows:

(1) Medical treatment of appendicitis is a practice which should be abandoned.

(2) Medical treatment (opium, belladonna and purgatives) not only accomplishes no good, but has not even the merit of temporizing, because with the first signal of pain that reveals an appendicitis the harm is already done, the canal is obliterated, the "closed cavity" is formed, "toxi-infectionness" begins.

(3) Patients treated medically die in the proportion of 30 per 100 (Chomel). They usually succumb to a general suppurative peritonitis, sometimes to a peritoneal sepsis, at times to an infection of the entire economy.

(4) Surgical treatment is the only rational treatment of appendicitis. Still the operation must be performed in time. This is an absolutely necessary condition. Every individual that an operation does not save is one operated too late. "Toxi-infection" focus before irreparable damage is inflicted. Never was *sublatâ causâ, tollitur effectus* more axiomatic.

Protracted and Chronic Forms of Influenza.

Filatow (*Archiv für Kinderheitkunde,* Bd. 27) has an interesting article under the above title. The differential diagnosis from typhoid, miliary tuberculosis and malaria being especially considered.

Against typhoid is the following syndrome: Tongue clean, appetite persisting, no nausea or vomiting, bowels normal or a tendency to diarrhea, no abdominal tenderness, urine free from albumin, no enlargement of spleen, no rose spots, Widal's reaction negative. The characteristics of the fever are (1) long duration and (2) moderate elevation.

Against malaria speaks failure of splenic tumor and such symptoms

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as malarial cachexia, failure to be influenced by quinin and absence of the *plasmodium* from the blood.

From tuberculosis differentiation may be very difficult, especially when the patient is from a tuberculous family and evidently predisposed to the affection, when the disease begins with catarrhal symptoms and the cough is protracted. The examination of the sputum for Koch's bacillus helps very little, since in miliary tuberculosis bacilli are never present in the bronchial secretion. If the disease runs a course without catarrhal symptoms and fever continues during its whole course to but a moderate height without considerable variations (that are so peculiar to tuberculosis), and moreover when several members of the family are similarly affected, then it is not difficult to exclude tuberculosis.

The prognosis as a whole is good, but it is impossible to presage the duration of the disease, and since the disease may be complicated with tuberculosis, pneumonia, pleurisy, etc., one must be cautious in giving an absolutely favorable prognosis.

Treatment.—Pure warm air is the most potent remedy against influenza. At first the patient is put to bed, and after acute symptoms have subsided treated in the open air, if the weather be moderate. People in favorable financial circumstances may be sent to a warm climate. The diet should be nourishing and correspond with the appetite. Among the medicinal remedies are mentioned: Quinin, arsenic internally or subcutaneously, phenacetine, sodium, salicylate, iron, and the saline baths.

FORENSIC AND STATE MEDICINE.

UNDER THE CHARGE OF FRED J. HODGES, B.Sc.; M.D.
Surgeon to the Wisconsin Central Lines, Ashland, Wis.

Limits of Formaldehyd Disinfection.

In view of the wide adoption of formaldehyd disinfection, practical and searching tests of its efficacy, such as were recently made by Dr. John E. Walsh, of Washington, D. C., (*Virg. Semi-Monthly*) are what is needed. He quotes some preceding experiments of Dr. E. K. Sprague to the effect that heat (90° C.) greatly increases the efficacy of formalin, in fact that only with such a temperature could the gas as commonly used be depended upon to do more than effect *surface disinfection.*

Since the utility of this gas as a disinfectant is established for surface and light fabrics only, the question resolves itself to the selection of the most simple and cheapest method of using it. Following he says:

Many different methods of evolving this gas in rooms have been

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employed, among which may be mentioned, 1st, the oxidation of methyl alcohol; 2d, the use of tablets of paraformaldehyd; 3d, heating formalin in vessels in the room; 4th, the use of regenerators from the outside, with or without pressure; and 5th, the use of saturated sheets.

The Kinyoun apparatus, with which most of you are familiar, is probably the best used for the production of the gas from methyl or wood alcohol. It consists of a pan containing mineral wool for the alcohol. Over this is a sheet-iron cylinder, having at its upper part a perforated platinized asbestos diaphragm. The whole apparatus is fitted with a cover.

The apparatus gave fairly good results, but was so uncertain in its working that its use was abandoned.

The use of formaldehyd tablets, I have never experimented with, except that I noticed that when heating them in a test tube, although the gas was given off, as soon as it came in contact with a cooler atmosphere it was reprecipitated, even before it left the tube. I concluded from this that it could not be a reliable disinfectant.

Boiling the formalin has the disadvantage of making the presence of a fire in the room necessary for several hours, when it could not be watched. This was dangerous from the fact that the solution contains alcohol, and sometimes became ignited, thus endangering the premises.

There are many forms of regenerators in use, the best being the one fitted with a pressure gauge and an automatic valve, regulating the pressure under which the gas is forced into the room.

It has the advantage of being operated from the outside and of using a smaller quantity of the solution, but has the disadvantage of requiring the labor of some one familiar with its workings, and consuming time. Its original cost is also high.

The method of using saturated sheets is as follows: The room is closed as tight as possible, and a line suspended from any convenient points. The sheet is then saturated with the formaldehyd, using one pound to each 1,000 cubic feet, hung on the line and the room left closed for six or seven hours. Before putting the hands in the solution, they should be covered with oil, to prevent contact with the solution. The whole operation does not take over five minutes.

The advantage of this method is that it can be done by any one, and in a very short time.

Its reliability was experimentally demonstrated by showing that it uniformly destroyed the more resistant bacteria upon the surfaces exposed and *in articles not* heavier in weight than three or four thicknesses of

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a blanket, especially when the amount of formaldehyd used is 500 cc. to each 1,000 cubic feet of space.

The Bubonic Plague.

Dr. Walter Wyman, of the marine hospital service, has just made to the Secretary of the Treasury a very valuable report upon the bubonic plague, which he says is "surely though slowly extending, and, for the first time in history, has invaded the western hemisphere." Dr. Wyman corrects the mistaken impression that the bubonic plague is a modern disease. It has been known from the earliest times as the "black plague" and "black death," and the literature on the subject is so voluminous that the mere enumeration of titles covers forty royal quarto pages in the *Index Medicus*. It is described by the Egyptians at the time of the Pharaohs; Thucydides and Livy tell all about it, and it is even referred to in the Bible—Zachariah xiv., 18. In the fourteenth century it is said that 25,000,000 people, or one-fourth the entire population of Europe, died of this plague, and in nearly every century succeeding it has prevailed with more or less severity in Europe, Asia and Africa, but until 1850 its western limits were the Canary Islands and its eastern limits the Island of Formosa, off the coast of China. In 1892 it first appeared in China, and in the following year in Japan, and in 1899 at Santos, Brazil, where in October of that year the disease appeared for the first time in the American hemisphere, and was followed by an extraordinary mortality among the wharf rats, which doubtless were infected by eating the rice in the cargo of the ship Rei de Portugal, upon which there were two cases brought from Oporto. In December, 1899, the plague appeared in Honolulu, where it offers a great source of danger to the United States, although it is believed to have been suppressed.

It was not until 1894 that a remedy for the bubonic plague was found effective, and the discovery is due to the Japanese pathologist, Kitasato, a graduate of the laboratory of Koch. In the year named he was sent by the Japanese government to study the disease in China, and found that it was due to a bacillus somewhat resembling that of chicken cholera, "a small, short rod, with rounded ends, of the non-spore bearing variety, characterized by its property of extremely rapid multiplication and the facility with which it entered the human organism," either by inoculation through external wounds or abrasions of the skin, by inhalation or by being taken into the stomach with food. One of Kitasato's colleagues, Dr. Aoyama, contracted the disease by inoculation during a post-mortem, and other assistants died from the same cause shortly after.

The fatality is appalling. The official reports show, however, that

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Europeans endure the disease much better than Asiatics and Africans, because of their superior constitutions, their intelligent treatment and their confidence in medical skill.

The symptoms are first a chill, followed by fever, overwhelming prostration, nausea and vomiting and the rapid formation of bubos in the glands. Early in the disease a delirium is noticed, followed by stupor. Pneumonic symptoms appear in many cases, and are most insidious and difficult of treatment, being followed by hemorrhages in expectoration.

The only remedy know is an "antipest serum." This treatment in Oporto recently showed the remarkable result of 70 per cent of recoveries. Fourteen per cent of the mortality there was in cases of pneumonic form.

The preparation of "antipest serum" has already begun in the laboratory of the marine hospital service in Washington in anticipation of the approach of the plague toward this country.

REVIEWS.

A Pocket Medical Dictionary. Including Tables of Clinical Eponymic Terms; Arteries, Muscles, Nerves, Bacteria, etc.; A Dost-list of Drugs and their Preparations, etc. By George M. Gould, A.M., M.D. Fourth Edition, Revised and Enlarged; 30,000 Words; Philadelphia; P. Blakiston's Sons & Co.; 1900. Pocket Size, 837 pp. Price, $1.00, of the Publishers or Dealers.

Dr. Gould's erudition and industry, through the medium of his dictionaries if by no other means, place the profession under lasting obligations to him. Nowhere else in the literature will so much information of so vital importance to the practitioner be found compressed within so small a space.

The growing tendency to honor original observation and study by designating the fact discovered by the discoverer's name, makes Dr. Gould's table of *eponymic terms* of great value. In his selection he has included surgical operations; anatomical features, structures and landmarks; disease symptoms, syndromes and entities; physiological phenomena; physical laws; and in a few instances instruments and mechanical appliances, but seems to have discriminated against the equally important class of terms applying to chemical and bacteriological tests and reactions. Thus we find no mention of the Fehling, Bottinger, Hellar or other urinary tests, the Ehrlich reaction, etc.. information which would be of much more importance to the student than the majority that are given. We look in vain for "Morton's painful affection of the feet," Bassini, Halsted or other hernia operations, etc., etc., although the Wheelhouse operation—devised and practiced by Cock—is defined.

In the light of the superior usefulness of the volume as it now stands these observations cannot be considered as criticisms, rather as suggestions for an even greater usefulness for succeeding editions that are certain to be demanded, although the number of copies already sold is sufficient to supply considerably over half the English speaking physicians of the land.

Scattered Leaves from a Physician's Diary.—A series of satirical sketches from real life, reflecting more or less upon the men who control it, by Albert Abrams, A.M., M.D. (Heidelberg), F.R.M.S., San Francisco, author of "The Antiseptic Club," etc.; pp. 60, with frontispiece; 50c. St. Louis, Mo. Fortnightly Press Co., Publisher.

It takes a medical man and a bright one to hit off the little weaknesses of the profession in an acceptable manner, but Dr. Abrams has proven himself equal to the task in this series of sketches. He coats his pill with such strong thrusts at the impositions practiced upon the Doctor that the whole "mass" may be bolted without a wry face.

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PAMPHLETS RECEIVED.

REMARKS UPON THE RADICAL CURE OF HERNIA. (11 pp.) W. J. Mayo, M.D., Rochester, Minn. Reprinted from *Annals of Surgery.*

CREASOTE IN TUBERCULOSIS. (4 pp.) S. Goldstein, M.D., New York. Reprinted from the *New York Medical Journal.*

THE TEST OF TIME AND EXPERIENCE. (16 pp.) A series of memoranda upon the treatment of diseases of the respiratory system and the indications therein for Syrup Hypophosphites Fellows.

DIAGNOSIS AND CLINICAL COURSE OF PUERPERAL ECLAMPSIA. (12 pp.) Frank B. Earle, M. D., Chicago. Reprinted from the *Medical Standard.*

CHLOROFORM IN LABOR. (5 pp.) Frank B. Earle, M.D., Chicago. Reprinted from *The Chicago Clinical Review.*

SYMPHYSIOTOMY. (6 pp.) Frank B. Earle, M.D., Chicago. Reprinted from *Medicine.*

LOCALIZED TUBERCULOSIS OF THE INTESTINE, with report of seven operated cases. (20 pp.) W. J. Mayo, M.D., Rochester, Minn. Reprinted from the *New York Medical Journal.*

ON THE SURGICAL TREATMENT OF HEMORRHAGE FROM GASTRIC ULCERS. (24 pp.) E. Wyllis Andrews, M. D., and Daniel N. Eisendrath, M. D., Chicago. Reprinted from *Annals of Surgery.*

BLASTOMYCETIC DERMATITIS (PSEUDO-LUPUS VULGARIS, SACCHAROMYCOSIS HOMINIS OR PSEUDO-EPITHELIOMA WITH BLASTOMYCETES.) (19 pp.) John E. Owens, M. D., Daniel N. Eisendrath, M. D., and Mr. C. F. W. Ready, Chicago. Reprinted from *Annals of Surgery.*

GONORRHEA IN WOMEN. (7 pp.) T. J. Watkins, M. D.; GONORRHEA IN CHILDREN. (8 pp.) I. A. Abt, M. D.; PATHOLOGY OF GONORRHEA AND TREATMENT OF SOME SURGICAL COMPLICATIONS. (5 pp.) Daniel N. Eisendrath, M. D.; WHY IS GONORRHEA STILL A MUCH DREADED DISEASE? (5 pp.) F. Kreissl, M. D., Chicago. Reprinted from *Chicago Medical Recorder.*

REPORT OF SOME CASES IN MY PRACTICE. [1, Hypertrophy and misplacement of lachrymal gland; 2, Calcareous deposits in the choroid; 3, Sarcoma of Choroid; 4, Retinitis albuminurica.] (8 pp.) M. A. Hughes, M. D., Salt Lake City, Utah. Reprinted from the *Denver Medical Times.*

NOTES.

Treatment of Sleeplessness.

Broadbent (*Lancet*) notes that sleeplessness is often due to coldness of the extremities resulting from weak circulation or overwork and fatigue. Rubbing the extremities, stimulants and the like usually overcome the trouble in such cases. In opposite conditions, with hot, burning feet, opium is often necessary, or antipyrin or similar drugs may be needed. But gout and allied troubles may be at the bottom of such conditions, and should be looked for and treated if present. High blood tension and low tension are frequent causes of sleeplessness. The former is usually well managed by aperients, especially mercury with coincident treatment directed to the cause of the high tension. Tonic treatment should be used for low tension. Indigestion is the most frequent cause of sleeplessness. Flatulence is an especially common cause of waking at some definite time and lying awake after this. Hot water and alkaline draughts are useful, but it is essential to get at and eliminate the cause of the dyspepsia. Influenza often causes sleeplessness. This should be treated for a short time with tonics since it is due to asthenia, but if tonics do not act soon one should have recourse to opiates.—*Phil. Med. Jr.*

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THINGS WISE AND OTHERWISE.

The Box and the Ballet.

There's a lady in one of the boxes,
  She's dressed in a manner au fait,
Which those who are posted on fashion
  Denominate decollete.

There's another one there in the ballet,
  Whose attire is quite comme il faut,
Reversing the cut of the other,
  It's decollete down below.

If you take the two dresses presented
  And combine them; when you are done
You will find that the new combination
  Will result in your having but one.

Now what shall we say of the puzzle?
  One garment, with women for two,
And both of them dressed in the fashion—
  We don't understand it. Do you?

—*Washington Critic.*

Some Don'ts for Vaccinators.

Dr. McClintock, the eminent chief of Parke, Davis & Co.'s Biologic Department, recommends the observance of the following "don'ts" in the use of glycerinated vaccine:

1. Don't prepare the site by washing with antiseptic solutions. Or if this is thought necessary—

2. Don't fail to rinse thoroughly with sterilized (boiled) water, and dry.

3. Don't draw blood if you can help it. A gentle oozing of serum gives much better results.

4. Don't fail to rub the vaccine thoroughly and persistently into the abrasion.

5. Don't replace the clothing until the vaccine is thoroughly dry.

6. Don't apply antiseptic dressings. Many of our most successful vaccinators never use any dressing except in cases where there is danger of infection from the environment or uncleanliness of the patient.

7. Don't expose vaccine to extremes of temperature. High temperatures spoil it.

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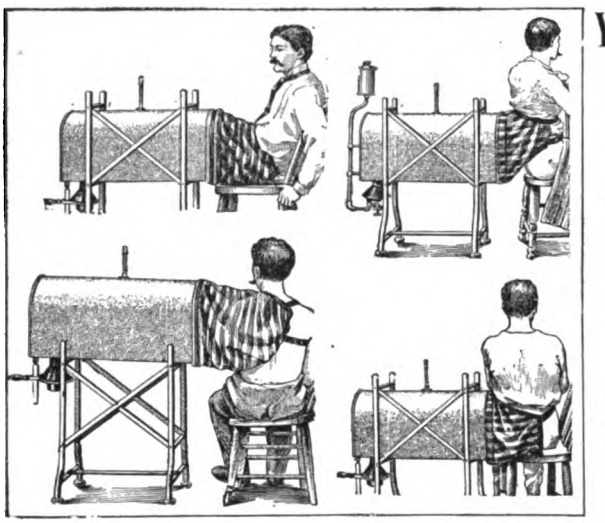

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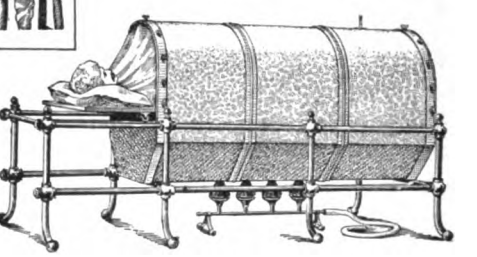

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8. Don't expect to find a swollen arm, indurated glands, high fever and a suppurating ulcer—these belong to the old-fashioned means and methods of vaccinating.

9. Don't accept the word of the patient or parent as to the success or failure of the process. Examine the case yourself, and if you find a typical vesicle—or the remains of one or more that may have been ruptured and emptied—assure the patient that he is protected against smallpox.

10. Don't be in a hurry about passing judgment upon a "take." Sometimes the vesicles are delayed in their development.

An Irish Definition.

Little Mike (who has struck a hard spot in his reading)—"Feyther, phwot is an autopsy?"

McLubberty (promptly)—"An autopsy, is ut? Sure, thot's phin a dead man requists dhe docthors to cut him up, so thot he can foind out phwot is dhe matther wid him."—*Bazar.*

Surgical Aftertreatment.

After surgical operations and severe hemorrhages, regeneration of the red corpuscles is a matter of great importance. The saline, watery and albumenoid elements are quickly restored by resorption, but without iron the blood is practically functionless. Armour's Extract of Red Bone Marrow is especially indicated because it increases hemoglobin and stimulates cell proliferation. It is a hemopoietic of the first class.

Koplik's Sign of Measles.

Solly (*Münchener Klin. Woch.*) among 78 cases of measles found the Koplik sign in 24 before the appearance of the eruption. The majority of the spots were situated on the mucous membrane of the cheek, opposite the molar teeth. There were a few on the lips, none on the tongue, or the hard or soft palate. The majority were smaller than a pin-head. They were slightly elevated, bluish-white, round, sharply circumscribed points, surrounded by a small narrow ring of red mucous membrane. Toward the end the spots disappeared without leaving any lesions. They had no tendency to coalesce. The sign is pathognomonic and permits a diagnosis to be made as early as four or even six days before the appearance of the eruption on the skin. The author says a few words about the claim of different authors to priority in the discovery of this sign. The eruption was probably first noticed by Gerhardt in 1877, although the latter did not recognize its value for the early diagnosis of measles.

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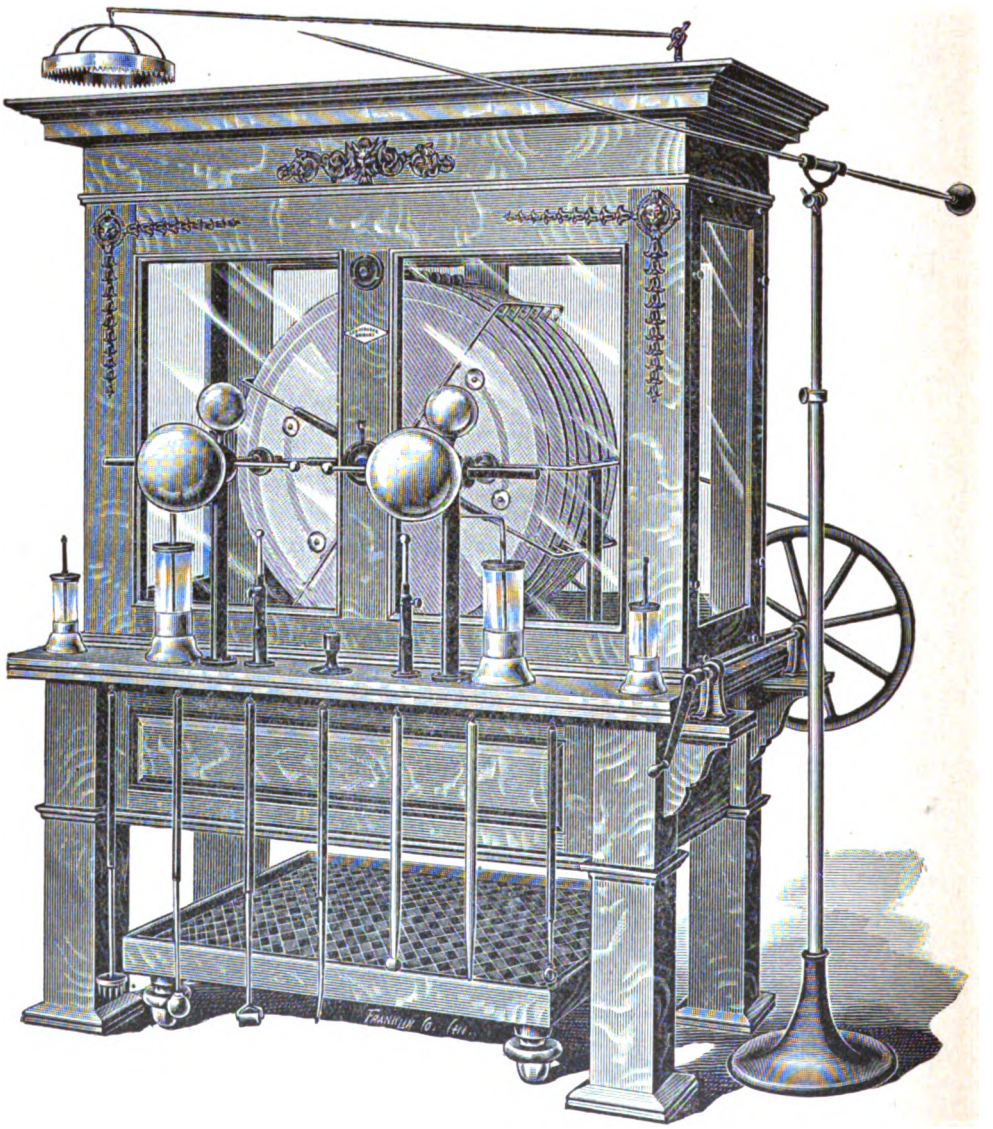

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Widowitz (*Wiener Klin. Woch.*) has noted that occasionally they are found in rötheln and other diseases (catarrhal inflammations of the respiratory mucous membrane and follicular angina). They are very valuable, but not absolutely sure early symptom of measles. A diagnosis cannot be based on them alone.—*Phila. Med. Jr.*

The Doctor Prescribes.

Jimson—"Doctor, I am getting too stout for comfort, and I want your advice."

Doctor—"Nothing reduces flesh like worry; spend two hours a day thinking of the unpaid bill you owe me."—*Tid-Bits.*

Vomiting in Pregnancy.

A writer in the *Practitioner* says that ten drops of a 20% solution of menthol in olive oil, given in sugar as soon as the nausea appears, can be depended upon to relieve the vomiting of pregnancy. Important if true. Try it and let us have a report of your results.

Her Natural Rights.

Mamma—"I don't see where you get your red hair; you don't get it from your papa, and you certainly don't get it from me."

Little Dorothy—"Well, mamma, can't I start something?"—*Puck.*

Sanmetto as an Internal Remedy for Genito-Urinary Conditions.

While fully realizing the superfluity of further testimonials concerning a remedy so well and favorably known to the entire medical profession as is Sanmetto, yet as I possess an extended knowledge of its reliability based on several years' clinical experience and on the treatment of hundreds of cases in which it has proven itself eminently fitted to lighten the cares of the genito-urinary surgeon, I am perhaps invested with a certain authority which should permit me the privilege of adding my meed of praise. In all the inflammatory conditions of the genito-urinary tract, from the meatus to the pelvis of the kidney, the administration of Sanmetto is invariably beneficial. It not only renders the urine bland and unirritating, but also exerts a specific action on the inflamed tissues, soothing and restoring the tonicity of the parts. Its tonic action on the prostate is of such a nature that it proves of equal advantage in cases of either hyperplasia or of atrophy, and there is no remedy so uniformly successful in the treatment of atonic impotency or pre-senility. I have found it of inestimable service in the preliminary preparation of cases requiring surgical interference, and, combined with salol, use it constantly to secure urinary antisepsis. I am fully of the opinion that Sanmetto represents all that could be hoped for or desired as an internal remedy for genito-urinary conditions.—*H. R. Weber, M.D., Univ. Med. School of Medicine, 1886. Member Am. Med. Assn., etc. Chicago, Ill.*

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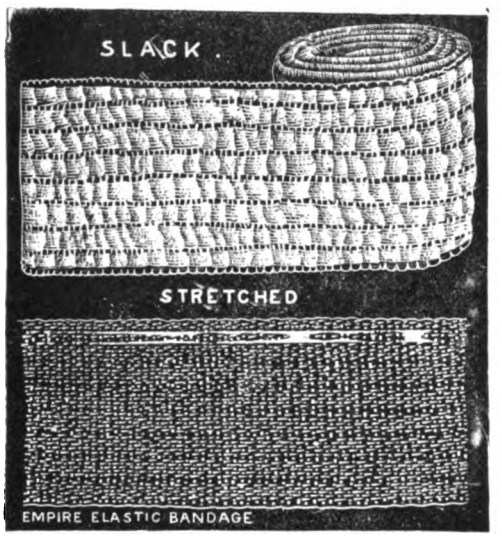

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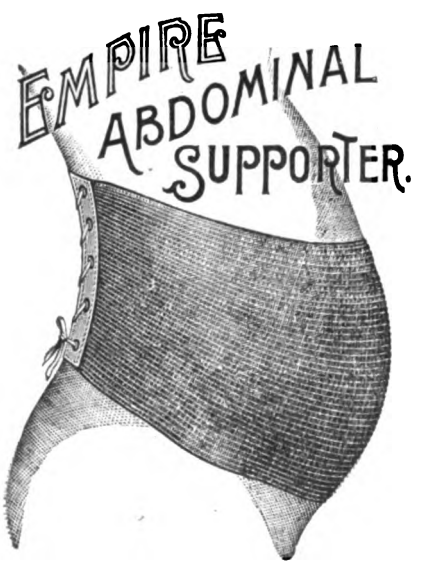

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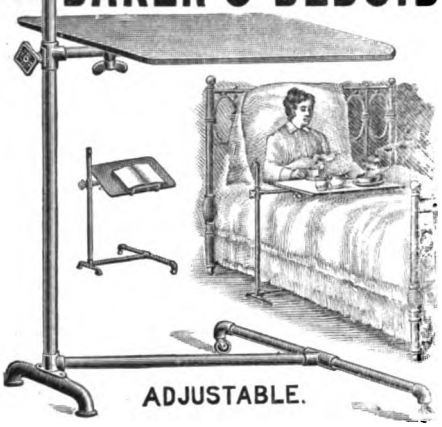

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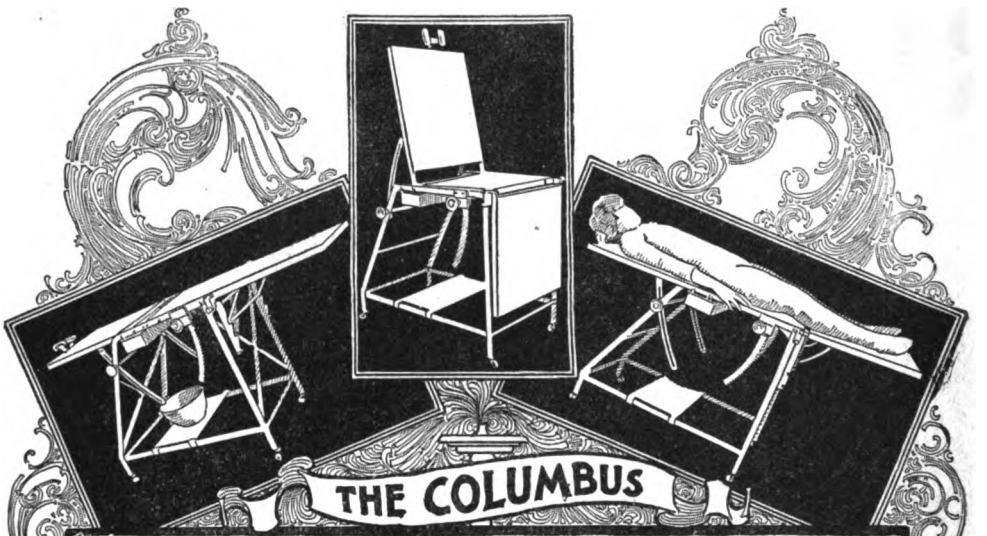

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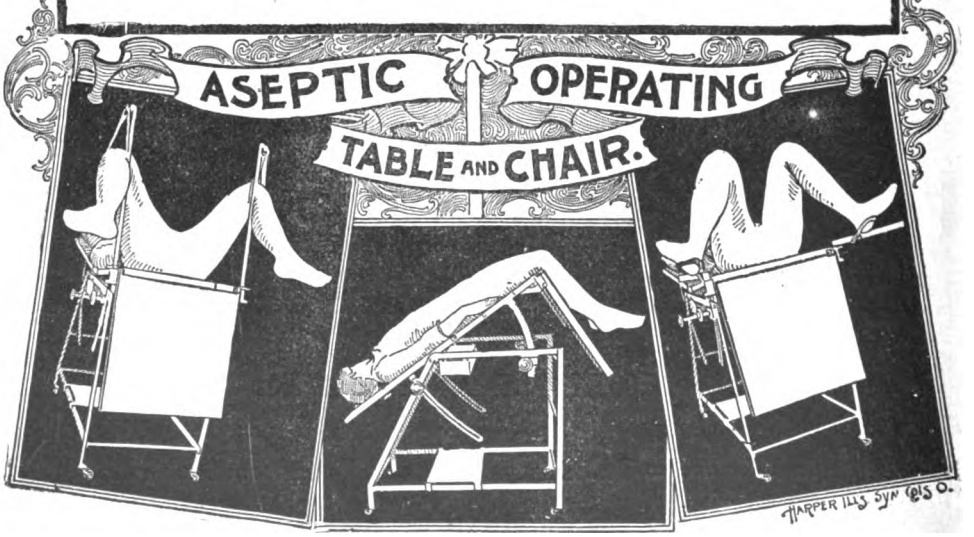

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